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USSR Report

ECONOMIC AFFAIRS

EKO: ECONOMICS AND ORGANIZATION OF INDUSTRIAL PRODUCTION

No 10, October 1985

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NEW PROSPECTS FOR AUTOMATION DESCRIBED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 3-14

[Article by Academician L. N. Koshkin, hero of socialist labor, winner of Lenin and USSR State prizes, honored inventor of the USSR: "An Important Stage in the Development of Technological Systems]

[Text] Increasing labor productivity plays a most important role in changing the national economy over to the intensive path of development.

In a paper at the June conference in the CPSU Central Committee concerning acceleration of scientific and technical progress, General Secretary of the Party Central Committee M. S. Gorbachev said: "An especially important task is to arrange mass manufacture of new generations of technical equipment that are capable of producing a several-fold increase in labor productivity and opening up the path to automation of all stages of the production process."

In this issue we are offering for the readers' attention a selection of materials on one of the most promising directions for automation--rotor and rotor-conveyor lines, whose application makes it possible to achieve a considerable increase in labor productivity. The Politburo of the CPSU Central Committee, having considered in its meeting in October 1984 the question of their introduction into the national economy, noted: "Extensive introduction of such automated lines, which are characterized by precision, durability and continuity of technological processes, makes it possible to sharply raise the level of intensification of public production."

The purpose of the development of production equipment is to raise its main economic indicator which is expressed by the ratio between the total output during the time of operation of this technical equipment and the total expenditures during this period. It would seem that this is an elementary

truth. But it is frequently ignored and therefore it is necessary to bring it to mind and emphasize it. Ignoring this truth is expressed in the fact that, when striving to reduce labor-intensiveness, in some places they do not consider the price it costs. This approach is especially typical of the creation of automated lines. Yet it is obvious that the expenditures on the equipment should be recouped within the given time period since from an economic standpoint it is inadmissible to make expenditures which cannot be returned for decades or will never be reimbursed.

The economic effectiveness and, consequently, the rapid recouping of expenditures for any devices whose purpose is to replace human labor are determined by the degree of their loading, that is, by the intensiveness of their operation. In particular, the effectiveness of automated devices to replace human labor for moving processed objects from operation to operation depends on the number of these transfers per unit of time; in other words, on the productivity of the combined operating machines. If these machines are not very productive, to join them together into an automated line is just as inadmissible as it is to construct a railroad between two points that do not have an adequate cargo flow.

The question arises: under what conditions can the goal be achieved? From our point of view, in order to provide a large total output from production equipment during the entire period of its operation it is necessary to have:

a) high productivity of machines per unit of time and, consequently, concentration of a large number of working instruments in each operation;

b) a high coefficient of the utilization of working time, the elimination of losses of time because of the instrument and, consequently, the possibility of automated service of the instrument;

c) a long duration of the utilization of machines, which is determined not by the replacement of production objects, which is typical of narrowly specialized automated machines and lines, but by physical wearing out of the machines.

The next condition for raising the main economic indicator of production equipment is the provision of small total expenditures. To do this it is necessary to have small amounts both of one-time expenditures (cost of equipment, cost of production areas and circulating capital) and current expenditures (wages for personnel servicing the technological equipment and the necessary production buildings).

A reduction of the cost of automated lines requires, in the first place, making sure they are not among the nonproducing (parasite) elements, that is, distributors of the flow of processed objects, devices for their orientation and accumulation. Naturally, one thus provides for a reduction of production areas and their cost.

In the second place it is necessary to have a higher indicator of structural perfection of the machines, which is reflected through the ratio of the weight of the instrument and the overall weight of the machine, that is, the

increased proportion of the instrument in the composition of the machines. For existing machines it is difficult to have an extremely low value of this indicator (1:25,000, 1:50,000 and so forth), which leads to high material-intensiveness and a high cost of the machines.

In the third place, the machines must provide for a good flow of processed objects in production--continuous action and transportation with maximum speed which, naturally, presupposes a high degree of automation. Human labor should be eliminated not only in performing the technological operations themselves, but also in servicing the instruments, including their replacement without halting the operation of the line.

The currently existing technological machines do not meet these requirements. They operate, as a rule, as a single instrument or else there is a very small number of instruments, as a result of which their productivity is not high. Servicing the instruments in them requires halting the operation of the machine, as a result of which the coefficient of their utilization even for single-operation machines is much below 1, and, naturally, decreases sharply when they are joined into automated lines.

From all that has been said one cannot but draw the conclusion that the existing traditional machines are not capable of solving the problem of sharply increasing the productivity of public labor. In our opinion this is confirmed by the experience in creating so-called flexible automated productions (GAP's). In GAP's in addition to the weight of the machines one has the weight of the guides, accumulators, storage capacities, transportation devices, robots and computers that control them. The proportion taken up by the instrument becomes even smaller. The coefficient of utilization of equipment decreases. According to certain plans, in order to release one worker with the help of the GAP's it is spend about 60,000 rubles. This means that it takes no less than 20 years to recoup the expenditures, which is economically unacceptable. Therefore the proposed release of 600,000 people in the future as a result of the creation of flexible productions seems to me to be more than problematical, not to mention the fact that, apparently, in the calculations they did not pay any attention to the inevitability of large labor expenditures on servicing all of the additional (to the main technological machines) mass of mechanisms and control systems. Therefore there is a real danger of never recouping the expenditures on the implementation of these projects.

Obviously the solution to the problem requires a changeover to technological machines which satisfy all of the aforementioned requirements, that is, which are different from existing ones in their very essence and, consequently, in all of their properties.

But what is the essence of machines? The essence of machines, like that of all other objects and phenomena, which is shown by dialectics, is the relationship among the basic oppositions that are inherent in them. In machines they are manifested in the interrelations between two major functions--transportation (movement of the object through the machine) and technological (action on the object). Traditional machines are constructed according to the principle of sequential performance of these functions, and

the contradictions between them are expressed in the fact that the processing of the object cannot begin until the transportation has been completed, and vice versa. These machines typically have inadequate productivity and, consequently, it is economically unjustified to combine them into automatic lines.

But there is another class of technological machines--rotary and rotary-conveyor machines--where the transportation and technological functions do not depend on one another and do not interrupt one another. Therefore the machines of this class can have freely selected speeds--greater for transportation movement, which determines productivity, and the optimally necessary speeds for technological movements. With these machines the working takes place during the process of continuous transportation of the items along with the instruments. In these machines on the drum-rotor there are instruments and operating parts which convey the necessary operational movements to the instruments during the process of revolution of the rotor. The number of instruments in the rotor is determined by the duration of the operation and the necessary productivity. Joining these machines together into a line, that is, transferring the objects of processing from one rotor to the next, is done by interoperational transportation rotors which acquire rotation that is synchronized with the operating rotor from the general gear for the line.

Rotary machines satisfy to a considerable degree the demands necessary for increasing the output per ruble of total expenditures. They involve numerous instruments and therefore they provide for a higher level of productivity, and the proportion of instruments in them is considerably greater than in traditional machines. They provide for a continuous flow of processed objects and, consequently, sharply reduce the length of the production cycle. Because of these properties they increase the output per ruble of general expenditures by a factor of 1. Rotary lines have therefore become fairly widespread and have completely replaced traditional equipment in a number of kinds of production.

But rotary machines are only the beginning stage in the development of equipment that is characterized by continuous transportation of the item of processing along with the instrument. The fact is that their possibilities are limited in terms of a whole number of aspects. Theoretically their productivity could be even higher if they were not held back by the unacceptable increase in the diameters of the rotors. For the same reason it is difficult to apply them for extremely lengthy operations, for example for many thermal and chemical operations, and also for certain kinds of pressing which require holding the object under pressure for a prolonged period of time. The problem of automatic service and replacement of the instruments is not finding an economically substantiated solution since in the rotor it is necessary to increase the sector between the output and the acceptance of the processed objects, that is, an increase not only in the number of instruments, but also the number of operating organs of the rotor and, consequently, it becomes more expensive. The number of various instruments in rotor machines is limited to the number of positions on the rotor and therefore only a small group of parts can be processed on them at the same time--no more than six to eight kinds. This has delayed their application for nonmass productions.

These properties of rotary machines, which limit their effectiveness and breadth of application, were the result of the permanent link between the instruments and the operating organs. This is also realized in rotary-conveyor machines in which the instruments are located in closed conveyors which bend around the so-called service rotors, which carry the operating elements necessary for performing the operations.

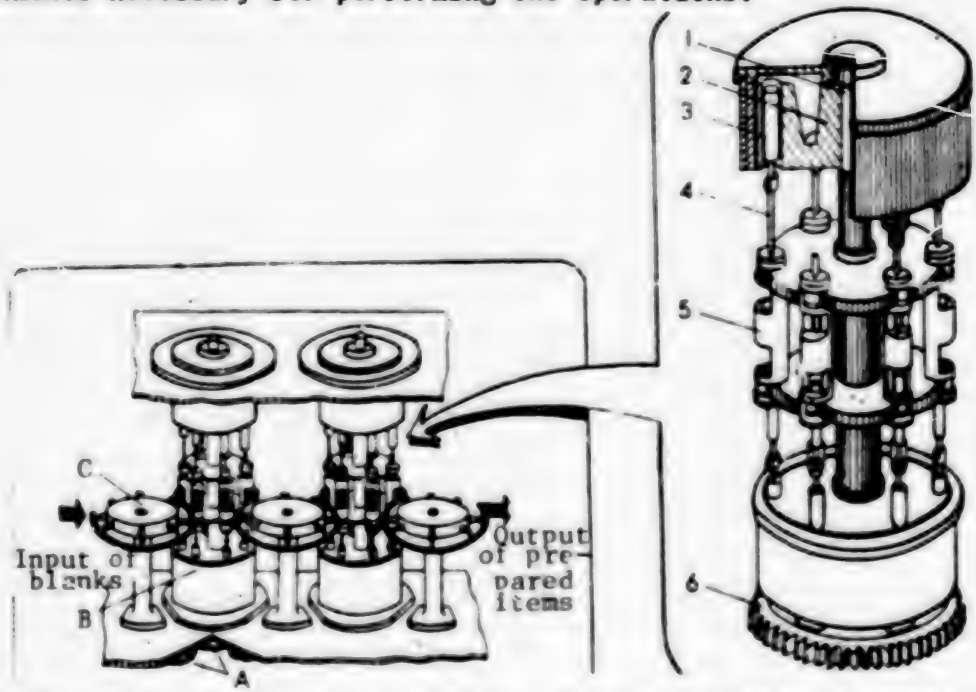

Figure. Automatic Rotary Line: a) universal drive; b) working rotor; c) transport rotor; Six-position technological rotor with bilateral mechanical; six-position technological rotor with bilateral mechanical drive: 1) shaft; 2) drum; 3) selector rod; 4) die; 5) instrument block; 6) cogged wheel drive.

Separating the instruments from the operating elements--changing over from a permanent link between them to temporary links--provides rotary-conveyor machines with most important new qualities and considerably expands their capabilities as compared with rotary machines. Now it is possible to combine in one machine practically any number of instruments one needs in order to process various objects since to do this it is necessary only to increase the number of instruments and the length of the instrument conveyor, but it is not necessary to increase the number of basic operating elements. The rotary-conveyor automated lines provide for performing hundreds of thousands of operations per ruble of total expenditures as compared to tens of thousands in rotary machines and thousands in traditional operational machines.

A necessary condition for a widespread, steady and economically effective changeover to rotary-conveyor lines is a high level of development of technology. In our opinion, the existing kinds of classification of technological processes do not reflect their radical differences since they are not based on the main indicator that reflects the essence of the process. This indicator, from our point of view, is the interrelations between two mandatory constituent parts of any technological process--the instruments and

the objects being processed. On the basis of this indicator all technological processes can be divided into four classes.

In the processes of the first class the result is determined by the effect on the object of only one point of the instrument. An example of such a process is sharpening with a simple lathe. The technological result--the formation of the given surface--is determined by an effect not throughout the entire line of the cutting edge, but only at one point--the point of the cut. Of the other processes one can include here the control of the sizes with outside calipers, an indicator or a micrometer, painting with a brush, sewing with a needle, weaving or knitting with a needle, and so forth.

Processes of the second class typically have a linear interaction between the instrument and the object of processing. Here all points of the working line of the instrument are technologically effective. An example of a process of this class is sharpening with a shaped cutter, rolling with cylinders, stretching through drying dyes, printing and coloring with typography rollers. The control and measurement processes of the second class are control of the sizes and form of the surface with linear curves.

In technological processes of the third class the instrument operates on the entire processed surface of the item. Examples of this action are stamping, casting, the manufacture of parts from plastics and metal powders by pressing, forming in molds, and so forth. An example of other processes of this class are painting with stamps. The result here is determined by the effect of the entire working surface of the instrument.

Technological processes of the fourth class are characterized by a three-dimensional interaction between the instrument and the processed object. Examples of these can be painting an object by immersing it in a bath, soaking, drying, various kinds of chemical and thermal processing in the appropriate chambers. The technological implements in these processes are such working spaces in which any point can affect any point of the processed object in the required way.

Various kinds of interaction between instrument and processed object of the class of technological processes correspond to various stages in the development of technology. The general objective law of development of technology, which is conditioned by the development of material and energy capabilities of the technical equipment, consists in changing from instruments that affect points to those that affect lines, surfaces and, in the future, three-dimensional processes. Various classes of processes contain various possibilities of being carried out by machines. Rotary and rotary-conveyor machines are a class of machines that correspond to the high stages of the development of technology.

The areas of production that are based on the processes of the high classes and therefore are ripe for changing over to the corresponding machines of high classes are already extremely broad even now. Suffice it to say that in stamping production alone in our country we use about a million presses and employ about 2 million people. In the proportion of processes of the third and fourth classes is continually increasing. In machine building this is

manifested in the expansion of the manufacture of parts by stamping, bending, extrusion, pressing, casting and a combination of these processes with various welding processes. In light industry this is manifested in the tendency to change over from sewing, knitting and weaving to gluing, stamping, pressing, applying drawings by the printing method, and so forth.

An incentive to replace processes of the first and second class with processes of the third class (for example, mechanical processing with pressure, stamping and so forth) is not only the reduction of labor expenditures, but also the possibility of saving on metal--changing over to reduced-waste technologies.

It should be emphasized that the real technical prerequisites for further development of the processes of the highest classes are far from being utilized extensively enough and they are not being utilized comprehensively. Various of the latest kinds of energy and materials (refrigeration equipment, directed laser beams, electrochemistry, films with high electrical resistance, and so forth) have not yet been extensively placed in the service of technology. The very production of an instrument that acts upon the service (stamps, press-molds, casting molds and so forth) is based on less productive technology, which frequently holds up the changeover to processes of the third class where this problem is already technically solved.

The creation of rotary and rotary-conveyor lines, naturally, was begun primarily for productions that are based on processes of the third class, and particularly for stamping productions. For these we have developed practically all the technological types of machines that are included in the complex of stamping production, that is, the stamping machines themselves (extrusion, coining, cutting, bending) and machines for auxiliary operations--thermal, chemical, technological coatings, and for control of various geometric dimensions and forms.

These lines have been used in large quantities for several decades now with a great economic effect (the output per ruble of general expenditures increases 8-9-fold). But they cannot be applied directly in the quantities necessary for extensive introduction to replace existing equipment. The fact is that rotary and rotary-conveyor lines were created for a particular size and power range, and the types of them so far are only 3-5 percent of what is necessary. The machines for the basic technological purposes (dosing, pressing, polymerization) have also been created for manufacturing items made of plastic both by casting under pressure and by pressing from powders. The lines consisting of these machines also increase the output per ruble of general expenditures 8-10-fold. But they have not yet been developed in a sufficiently broad range of kinds either--10-15 percent of the type and size range necessary for replacing existing equipment.

Rotary and rotary-conveyor lines exist and are being used effectively for assembly operations. Thus, for example, the line for assembling aerosol valves has a productivity of 1,000 valves per minute, it releases about 400 workers and it produces an annual effect of 900,000 rubles while the cost is 160,000 rubles. There are also rotary conveyor lines for assembling roller-bushing chains, for assembling bellows and for many other things. The task is

to create a sufficiently broad size range of typical operational rotor-conveyor machines for assembly operations.

Preliminary calculations show that to change most of the technologically prepared productions over to rotary and rotary-conveyor lines it will be necessary to develop about 2,000 type sizes of operational rotary-conveyor machines. This task can and should be carried out in the 12th Five-Year Plan.

Very frequently the question is asked: "And how do things stand with the creation of rotary-conveyor machines for processes of the first class, particularly for manufacturing parts by methods of mechanical processing or, more precisely processing by means of instruments that operate with a point?" Their utilization for processes of the first class cannot be as extensive as for processes of higher classes, mainly because this would require the creation of a very large, practically limitless multitude of operational machines for objects with various shapes.

For processes of the first class the changeover to rotary-conveyor machines should be linked primarily to a limited number of geometric forms of objects for processing, for example, for parts like shafts, bushings, and disks which require a limited number of kinematic types of operational rotary-conveyor machines. Of course a condition for their effective application is the possibility of loading the line.

The creation of the entire necessary range of types and sizes of technological rotary-conveyor machines and the reequipment of industry with them is an immense task in terms of the volume of work, but this is not a branch and not a departmental, but a general national economic task. Our industry has all the necessary resources for carrying out in fairly short periods of time.

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SLOW INTRODUCTION OF ROTARY-CONVEYOR LINES EXPLAINED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 14-16

[Article by B. K. Volonchuk, deputy chief of the special design division: "The Design of These Lines is Extremely Efficient"]

> [Text] The expediency and effectiveness of the application of rotary-conveyor lines have been proved by practice. But their use is spreading slowly. What are the reasons for this? Our correspondent asked specialists engaged in the design, operation and planning of the production of rotor-conveyor lines to answer these questions. We are publishing their responses.

[Question] For many years now your plans for comprehensive automation of production have been basically linked to the application of automated rotor and rotor-conveyor lines which were designed by Lev Nikolayavich Koshkin. What motivates you to use them so extensively?

[Answer] The design of these lines is extremely efficient. And the efficiency is achieved through original, significant solutions. The main advantage of the lines as compared to other kinds of automated technological equipment lies in the absolute continuity of the flow of objects to be processed, its performance of technological operations during the process of transportation, and the effect in practice of almost complete elimination of idle running of the working instrument. These factors have become the basis for a sharp increase in labor productivity with the utilization of automated rotary and rotary-conveyor lines (ARL and ARKL). Since they envision a dense combination of working positions, the transportation links between the machines have been simplified as much as possible and devices for accumulating objects to be processed and transferring them have been eliminated (design of the lines makes it possible to combine various types of technological operations that differ in terms of their character and the length of the cycle), along with a considerable advantage in productivity one also achieves a reduction of material-intensiveness, production area and capital investments.

[Question] From your point of view where are these lines most efficient and effective?

[Answer] They are best in large-series and mass production of items that have a simple geometric shape (for example, parts like bodies that revolve) and relatively small sizes. We use them extensively in operations for cold treatment under pressure, for pressing parts of magnetic starters and automatic switches made of plastic, and for casting furniture accessories from thermal plastic. Many enterprises ask us for assistance in designing automated rotary lines. For example, we helped the Tomkabel Plant in developing an ARL for manufacturing plugs.

We use ARL's and ARKL's for other operations as well--thermal processing with high frequency currents, for dosing and weighing polymer powder, for monitoring geometric sizes of parts, and for assembling parts and items.

[Question] Why, in your opinion, is the application of ARL's and ARKL's still being held up even with their obvious advantages?

[Answer] In the first place, because of the rigidity of the ties among the rotary machines that are included in the lines. If one position comes to a halt the entire line stops. Now, true, we have begun to see systems with automatic replacement of instruments and reserves of individual aggregates. But, in my opinion, they are still not perfect.

In operations for processing under pressure which require for the formation of the parts (for example, stamping large metal items) superhigh power, these lines cannot be used (imagine what gigantic rotors would be needed and the corresponding production premises!). Nor can they be used for welding body parts, say, for passenger vehicles. Mechanical processing of body parts by cutting, especially large parts, is thus unacceptable. The author himself, Academician L. N. Koshkin, thinks that for technological processes of the first class, among which he includes metal processing, there is no point in using ARL's and ARKL's. Here, it seems to me, there is still no competition with robots and processing centers which can be used both separately and as parts of flexible automated systems.

On programmed robots are essentially ordinary manipulators, and we have used them previously, for example, for adding flexibility to technological modules for pressing parts made of thermosetting plastic. The flexibility, of course, was relative and was determined by the sizes of the instrument blocks of the automated flow lines. But fairly recently we began to introduce "robot-intellectuals" with a large electronic memory and replaceable programs for parts that are "inconvenient" for rotary lines.

Without electronics the ARL is unthinkable, and this was especially clearly demonstrated when we created an experimental model of them using the optical-

electronic principle for examining the surfaces of parts for defects. With the development of this area of automated rotary lines we believe that it will be possible to release hundreds of workers who are now employed in checking on the surfaces of parts by hand.

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ROTARY LINES PROVIDE GREATER LABOR PRODUCTIVITY

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 16-18

[Article by V. A. Soldatenko, head engineer of the Kvant NPO (Moscow): "An Immense Advantage in Labor Productivity"]

[Text] [Question] In your NPO for the first time in the world an attempt is being made to apply automated rotary lines for producing galvanized elements. What are your goals and tasks?

[Answer] The main result we hope to achieve is the advantage in labor productivity. The consumption of galvanized elements is increasing sharply in the country and they are considered to be in short supply. The complaints about the shortages of them on the shelves of stores are justified (although frequently the shortage is a result of the inability to organize correctly the sales of the specific "short-lived" items).

Our association's scientific research institute has created extremely effective and economical new kinds of alkaline galvanic cells. It has been calculated that 1 billion of these would be enough to fully satisfy the country's annual demand. And if one were oriented toward the output of the traditional items--saline galvanic cells--the annual level of their production would have be increased to 3 million.

And so science has had its say. The task for production was one-third as large as it previously was. But a billion is also a good deal. Therefore the developers did not stop at simply creating the items themselves. They designed equipment for their production. The technology and equipment have world recognition, which is shown by the millions of rubles in currency which our country has received for the sale of the licenses.

But for many reasons, the main one being the slow development of the new raw material base (the ill-fated problem of electrolytic manganese dioxide--EDM, which was so bitterly discussed in LITERATURNAYA GAZETA), the assimilation of this equipment was drawn out for almost 10 years since the peak of its assimilation corresponded with the well-known aggravation of the demographic situation. Then it was necessary to strengthen the conviction that the only technology there could be today in producing alkaline galvanic cells, taking

into account the large-scale use of the items and the sharply growing shortage of labor resources, for the technology based on rotary-conveyor lines. We expect that because of this we will be able to increase labor productivity in the manufacture of new elements dozens of times over.

At enterprises of the Soyuzelektroistochnik VPO it is intended to create in a short period of time four automated complexes, each of which will consist of seven basic sets of rotary-conveyor lines and eight auxiliary support modules. Each complex will have a capacity of 300 million items per year. The complex and its elements are to be controlled with a computer and microprocessor equipment.

Three automated complexes will be installed in the western regions of the country, and one of these will be in Siberia. We shall assemble the first of them at the Klypeda Sirius dry cell plant. It will be started up in stages. This will begin at the end of 1985 and end in 1987. The rest of them should be installed and put into operation before the end of the 12th Five-Year Plan.

In addition to our association, a number of scientific research institutes and design bureaus of the Ministry of Electrical Equipment Industry have been enlisted in the creation of the complexes. Specialists of the Institute of Electric Welding imeni Ye. O. Paton of the UkrSSR Academy of Sciences is participating actively in this work. We maintain constant contact with Academician L. N. Koshkin.

As we know, the creation of new technical equipment is regulated by the corresponding plants. On the whole this is correct. But it seems to me that these plans suffer from two shortcomings. The first of them originates, strange as it may seem, from the very best of intentions--to obtain models of the new technical equipment more rapidly. Therefore even in the period of decision-making, before specialists have worked out the technical aspects of the problems the strictest time periods are set for the enterprises and associations. And unrealistic time periods are the worst enemy of new technological equipment. Haste in the initial stage costs a great deal during the stage of introduction. This danger, in our opinion, has been established and especially in those cases when it comes to a task which is extremely complicated but does not promise a large effect. The second shortcoming is the lack of balance between assignments and resources.

All rotary-conveyor lines will be created as special technological equipment through the efforts of the branch itself.

[Question] You are the head designer of the lines for your subbranch. In your opinion would it not be more expedient to specialize the series machine-building plant in the output of equipment for rotary lines and not begin from the beginning in each subbranch and branch?

[Answer] Apparently each branch should provide its own equipment for special technological processes. But even in this case it is necessary to think about interbranch standardization and the organization on the basis of this of specialized productions of standardized parts and elements for rotary conveyor lines.

As for such processes as the casting of parts from thermally processed plastic, certain kinds of stamping, pressing of blanks and others, in order to carry these processes out there has long been a problem of creating specialized productions of rotary-conveyor lines. For their application is being held up not by their unsuitability or ineffectiveness, but by the fact that the majority of potential consumers are not able to manufacture these lines for themselves. The creation of specialized plants would significantly accelerate their introduction.

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USE OF ROTARY CONVEYOR LINES INSPIRES CONFIDENCE

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 19-21

[Article by L. A. Belyayev, deputy head engineer of the Podolsk Battery Plant (Moscow Oblast): "The Practice of Application Inspires Confidence in the Effect"]

[Text] [Question] Your plant was one of the first to begin to use rotary lines. What has the practice of their application shown you?

[Answer] Their effectiveness is obvious. Operating in the plant's press shop the rotary conveyor line for casting plastic parts produces 125 items per minute, and in a year with one-shift operation--about 7-8 million (the plant's demand is about 3 million). If one were to install two of these lines, with two-shift operation it would be possible to satisfy the demand for battery plugs of all battery plants in the country.

The productivity of the line is 15 times higher than the automated thermal plastic machines that were previously used; five automated machines operated on three shifts and barely managed to satisfy the needs of the plant.

The work for creating and introducing the line began in 1972. In the first stage the designers created and installed at our plant an operating mockup of the line on which they worked out the technological process of casting battery plugs and checked the design of individual units of the mockup in their operational reliability. With the cooperation of the Podolsk city party committee, at enterprises of the city they manufactured technological fittings (casting molds) whose design also underwent testing and was used on the operating mockup.

In 1974 an experimental industrial model of the line was manufactured. It underwent finishing work with subsequent modernization in 1978 and the final testing under the conditions of prolonged operation (up until 1980) at the plant. During the entire period the experimental industrial model satisfied the entire demand of the plant for batching batteries. There was a dual advantage: the plant was able to have highly productive equipment without waiting for the series-produced lines, and the developers were given the production base necessary for testing new equipment under the conditions of

industrial operation and bringing it up to the requirements of series production.

In 1980 the Odessa Pressmash Association manufactured the first industrial model of the line. And taking into account the specific features of the line we created a new design of completely cast battery plugs, eliminating three operations. The number of workers was reduced by 20 as a result of the application of the highly productive line and the new design of the items.

The plug, of course, is not a complicated part. But it is worthwhile taking into account how many people are employed in the manufacture of various kinds of plastic plugs! Tens of billions of plugs are used in the food, chemical, chemical-pharmaceutical, perfumery and other branches of industry. It would be expedient to create several base specialized enterprises, to install rotary conveyor lines in them and to satisfy the entire demand for plugs of various branches of the national economy.

The first result from the application of automated rotary lines would be to motivate us to expand the sphere of their operation. On such lines the plant intends to develop the production of monoblocks made of plastic and covers for batteries for motorcycles and scooters. Now their manufacture is done in three automated casting machines that work on two shifts. The annual production volume is 500,000 sets of parts. The introduction of the new lines will make it possible to produce 1,000-1,200 sets per hour.

In the future we intend to introduce rotary technology for producing battery cables. About 27 percent of the acid batteries for trucks, buses, tractors, motorcycles and scooters (we do not produce batteries for passenger cars) are manufactured at the Pdolsk Plant. According to preliminary calculations, the line will make it possible to obtain 100 cable parts per minute--a 7-8-fold increase over the existing technology for manufacturing them in automated casting machines, including the latest automated machines from the English firm Chlorite.

Because of the rotary line, for producing cables for batteries produced by our plant alone one releases no less than 50 casting workers from harmful working conditions. For, as we know, casting parts for lead batteries is among those productions with harmful working conditions. Moreover there is no longer any need to construct a new casting building in which, according to the plan, about 50 automated machines of the Chlorite type were to be installed. They will be replaced by six to eight lines which will be installed during the reconstruction of the existing casting facility.

It is understandable that for a successful introduction of their new technical equipment it is necessary first and foremost to have fruitful cooperation with science. We have such an alliance. The designer of the lines, Academician L. N. Koshkin, and his assistants, having seen the interest of the production workers, have rendered us an immense amount of assistance in adjusting, installing and assimilating the equipment. Now, with the participation of the institute of casting of the Ukrainian Academy of Sciences, we are creating a

line for casting cables. Under the direct leadership of its director, Academician of the Ukrainian SSR Academy of Sciences V. A. Yefimov, we are developing new technology for casting, and Academician L. N. Koshkin and his assistants are giving us advice concerning the creation of the line.

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SERIES PRODUCTION PLANNED IN BATTERY PLANT

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 21-23

[Article by V. I. Zheleznyakov, chief of the press shop of the Podolsk Battery Plant (Moscow Oblast): "Organizing Series Production"]

[Text] [Question] Your shop has a certain amount of experience in working with rotary-conveyor lines. We should like to hear your opinion about the problems in assimilating and operating them.

[Answer] Yes, we have tested an experimental model of a rotary-conveyor line for casting plastic parts and then installed the head model of the first industrial series of this equipment which was produced by the Odessa Pressmash Plant. Unfortunately the Odessa workers did not fulfill the order successfully. Without assistance from the developers in installing, adjusting and assimilating it we did not manage to put the equipment into operation. I think that in the future such equipment should undergo testing at the manufacturing plant and it should be installed with the complete set of fittings, which will make it possible to considerably reduce the amount of time for putting this line into operation at enterprises that use the given equipment and also will make it possible to eliminate all incomplete work which is discovered only when the line is being put into operation by the consumers. Specialists of the manufacturing plant will accumulate a certain amount of experience. Now the manufacturing plant has no interest in the production of these lines.

[Question] How can it be increased? What must be done in order to accomplish this?

[Answer] It seems to me that the interest will increase as soon as any machine-building enterprise specializes in this product and begins to produce it in series production and comprehensively--with the use of spare parts and aggregates. Then it will be possible to realize all of the advantages of specialized production--a higher level of technology, control and organization of labor, competence and skills of personnel, and so forth. Now many rotary conveyor lines are created as nonstandard equipment, for example, in the Soyuzelektrotekhnologiya Association of the USSR Ministry of the Electrical Equipment Industry and analogous subdivisions in other branches.

If we do not organize specialized production of rotary conveyor lines on a good level of operation, then in spite of their great economic effect and high productivity, their introduction will take place very slowly. One developing organization is not capable of helping all of them in the installation, adjustment, consultation and finishing.

I should like to draw attention to a dangerous tendency which we have had occasion to observe. After the creation and utilization of rotary conveyor lines was approved at a meeting of the Politburo of the CPSU Central Committee, almost every day our shop was visited by representatives of enterprises in various branches--electrical equipment, radioelectronics, the chemical industry and machine building. Every enterprise is asking for advice about how to install its line. But the rotary conveyor lines are so productive that it is not expedient to install them at all enterprises at one time. The same path must be taken here--specialization of particular productions for rotary conveyor technology and the provision of their products on the basis of cooperation of all of the interested consumers. Yet the chemical industry is adhering to another viewpoint--give the consumer enterprises raw material and let each one cast his own items for himself.

The operation of these lines requires highly qualified workers who are employed in the adjustment and repair of the given equipment, and therefore even now it is necessary to think about training the corresponding personnel and also it is necessary to make an addition to the unified wage rate-skills reference: to introduce a new occupation--"adjuster of rotary conveyor line" with a high rank (5-6).

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NEED FOR ORGANIZATION STRESSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 23-25

[Article by V. F. Zakharov, subdivision chief of USSR Gosplan (Moscow): "One Should Not Put the Horse Before the Cart..."]

[Text] [Question] Among the problems related to the creation of the rotary conveyor lines the developers and operators especially emphasize the need to organize specialized production of them. How realistic and promising is this possibility?

[Answer] The question of the development of the production of automated lines of a rotary type has reputedly been the subject of consideration, and there specialization of production has been determined by machine-building ministries. Thus the State Committee for Science and Technology in 1970 adopted the decree "On the Creation of Models of Automated Machines and Lines of a Rotary Type for Branch Application" which envisioned the output of concrete models of this equipment at enterprises of the Ministry of the Machine Tool and Tool Building Industry, the Ministry of the Automotive Industry, the Ministry of Light and the Food Industry, the Ministry of the Medical Industry and others. Unfortunately, in certain branches, particularly the Ministry of Chemical Machine Building, they have not begun to produce this equipment. Therefore the Gosplan, when considering in 1976 the condition of the manufacture of rotary machines, was forced to instruct the Ministry of the Machine Tool and Tool Building Industry to produce rotary lines for obtaining items made of plastic, and the Ministry of the Chemical Industry--to determine the list of items which it would be economically expedient to manufacture on these lines. During 1980-1984 at enterprises of the Ministry of the Machine Tool and Tool Building Industry they manufactured 10 sets of lines of one model and there were no more orders for them. Yet the USSR State Committee for inventions and discoveries, with the participation of a number of branches of industry, determined the calculated need for several hundreds of sets.

Now rotary lines are being developed and manufactured in enterprises of the Ministry of Instrument Building, the Ministry of the Automotive Industry, the Ministry of Agricultural Machine Building and the Ministry of the Electrical Equipment Industry.

[Question] As far as we know in these branches even in their departments they have not organized centralized production of rotary equipment.

[Answer] Yes, that is true. It is still impossible to speak of centralization and specialization. With the help of the developers they have manufactured a rotary line for producing bellows at the Smolensk Light Equipment Plant, at the Seratov Ball-Bearing Plant of the Ministry of the Automotive Industry they manufactured one for producing needle bearings, and at several plants of the Ministry of Agricultural Machine Building they have developed lines for producing roller chains for agricultural equipment.

Further development of the production of these lines will be determined by the revealed demand. But to do this it is necessary for each machine-building ministry in conjunction with the ministries that are consumers of the equipment to analyze the list of parts produced in the branches and to reveal the part for whose production it would be expedient to use rotary and rotary-conveyor lines and, consequently, to determine the demand for these lines in each branch of industry.

[Question] It turns out to be a closed circle: if you do not discover the demand there will be no orders and there will be no equipment. Without the equipment it will be impossible to test its capabilities in practice....

[Answer] There is no closed circle. A number of branches already have experience in the development and operation of these lines. Thus there is a certain base for expanding the area of their application. In order to accelerate the work for the introduction of lines of the rotary type into the national economy the USSR Gosplan and State Committee for Science and Technology are preparing proposals for assigning the production of certain types of lines to the leading machine-building ministries. They have determined the head organizations of the branches which are responsible for this problem. The ministries have been given assignments for creating experimental models, assimilating industrial production and introducing the first lines during 1986-1990. Thus there is a certain amount of progress.

[Question] But still what about production specialization?

[Answer] We should not put the horse before the cart. The determination of the list of lines and the need for them will be the basis for the solution to the problem of the organization of their specialized production.

[Question] Production workers are raising questions of installation, adjustment and repair of rotary conveyor lines and the training of personnel for their operation and servicing. How will these problems be solved?

[Answer] The USSR Gosplan and the State Committee for Science and Technology suggest creating a scientific information and training center. In addition to

this they are to organize the training of engineering and technical personnel and workers for the planning, manufacture and operation of lines of the rotary type in the system of the USSR MinVUZ and the USSR State Committee for Vocational Training.

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PROSPECTS OF ROTARY-CONVEYOR LINES SURVEYED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 25-33

[Article by Ye. L. Lysaya: "A Look Beyond the Horizon"]

[Text] When Lev Nikolayavich Koshkin joined the faculty of the Tula Mechanics Institute (now polytechnical institute) where he was asked to give a course of lectures and production automation and instead of dry technical calculations he showed the influence throughout all of its dynamic diversity, the students were presented with an attractive world of ideas which attracted and excited them, and promised them the joy of discovery and the difficulties of research.

"These were not ordinary classes in one of the technical disciplines. The creative imagination of the scholar and designer forged tight frameworks for purely practical problems. The flight of his fantasy attracted us beyond the horizon and eliminated the truth in all of its complexity and multidimensionality. Mechanics, economics, physics and philosophy appeared before us in a living organic unity, and they acquired flesh and blood. He did not simply teach us to design automated lines, he invited us to transform life and production," recalls USSR State Prize winner, Candidate of Technical Sciences Yevgeniy Nikolayevich Frolovich. "In that time I have been working for more than 30 years with Lev Nikolayevich Koshkin and it seems to me that the unusual journey beyond the horizon is continuing."

Lenin Prize winner and designer Nikolay Vasilyevich Volkov puts it this way: "I would Koshkin a philosopher in technology. He considers the essence of the machine and its main functions from the standpoint of the unity and the struggle of opposites. And in us, his students and assistants, he has instilled an interest in dialectical materialism. Many philosophical categories have ceased to be abstractions for us. Through the prism of these we analyze the essence of phenomena in the sphere in which they are used and we understand them more profoundly."

From the statements of Academician Koshkin: "Just as the human metabolism determines all of the other processes of life activity, so the essence of the machine is that major property which influences all the rest of its characteristics. Only by establishing in one's mind the internal connections

among the major functions--technological and transportation--is it possible to create progressive technical equipment."

From the correspondent's notepad. The first independent design of the young designer Koshkin was a single-operation automated machine that was developed in 1938, in the second year after he graduated from the Moscow Higher Technical School imeni N. E. Bauman. Lev Nikolayevich entered the engineering profession as a completely mature individual since before training in MVTU he managed to work as a mason and a lathe operator, he knew the price of heavy manual labor and he thought a good deal about making it easier with the help of machines.

Although Koshkin carried out his assignment successfully he did not experience a great deal of moral satisfaction: his efforts seemed so futile, so completely in vain, as did the efforts of those people who manufacture and operate the automated machine! One instrument--a miserly piece of metal weighing only a couple of dozen grams--should justify the existence of a machine which exceeds its weight thousands and hundreds of thousands of times over! After this automated machine the part will go to another machine tool where an equally insignificant instrument worker will perform its tiny function, and the item will then go on its subsequent journey throughout the shops and sections, engaging the minds and the labor of people. Koshkin was struck with the idea of creating a machine which would not be a parasite of the efforts of the instrument-worker, but would combine them. Thus originated the idea of the rotary machine on whose disk it is possible to place several times more instruments than in an automated machine which is intended for one or two operations. During the years of the Great Patriotic War, on the basis of rotary machines, the designer created an automated line with productivity which was dozens of times greater than the traditional flow lines. The work was distinguished with the USSR State Prize.

His main opponents were the "cutters"--specialists in the area of mechanical processing of metal by cutting, and they set the trend in the area of automation and mechanization. Behind them was the entire branch of machine building, and the organization of series production of equipment depended (and still does depend) largely on them. What did they have against the designer? The fact that the automated rotary lines did not include metal processing, and in general they were not lines....

"Of course, what kind of a line is it if it takes up no more space than an ordinary press or machine tool! There are no accumulators, reloaders or other superfluous pieces of iron that give the lines their costly solidity and pomposity," Koshkin said ironically. "And the fact that the labor productivity increases not by percentage points, but many times over apparently does not seem to its opponents to be an essential indicator of the rotary line. And then: Why should cutting be the embodiment of all metal processing? What about stamping and precision casting?"

In general the situation is fairly typical. An inventor, whether he be alone or the manager of a design bureau intrudes into the holy of holies of the head institutes in the area of automation. Even with the most favorable conditions the forces are not equal. As we know, frequently, unfortunately, the honor of

the uniform wins out. But this time it did not. The lines designed by Koshkin were used in many plants, his technical decisions were recognized as inventions, and his theoretical works attracted the attention of many colleagues abroad, they were translated into foreign languages and they were republished in a number of countries. On the basis of automated rotary lines Lev Nikolayevich created a comprehensively mechanized production, for which he was awarded the Lenin Prize.

But the designer did not think that he had won a complete victory. What bothered him: each enterprise which wanted to use the rotary lines had to develop and create them for itself. As soon as the managers learned of this, the number who wished them immediately decreased: it was necessary to have design capabilities and their own well-equipped production of machine tools or nonstandard equipment. Not only enterprises that were not machine-building enterprises, but even medium-sized machine-building plants did not have such capabilities.

"As you can see, there are not many plants which wish to use these lines," said the opponents when refusing to give their approval for series production.

The battle of opinions stimulates progress. In this sense each author of a productive idea can say "thank you" to his opponents for their constant attention and the scrupulous analysis to which they subject the limits of the idea, like the facets of a precious stone. Sympathetically sighing about the "limitations which reduce the great possibilities of rotary lines," they forced the designer to make refinements and improvements. Koshkin transformed the instrument from a rotor to an independent conveyor which by bending the rotors being used makes it possible, on the one hand, to free the instrument from its strict connection to the processed item, and to make the line more diverse so that it is capable of processing various objects. Then it can be used not only in mass productions, but also in series productions. On the other hand one can reduce the diameter of the rotor machine, increase the number of rotors in the automated line and increase its productivity. This designer reserves on the conveyor a section--a branch--for replacing and eliminating malfunctions of the instrument without stopping the line. He created his own original systematization of technological processes, dividing them into four classes. The main indicator of the classification is the progressiveness of the technology.

But still when speaking about opponents it would be incorrect not to recall those who unwaveringly supported and advanced the new area of automation. The first to evaluate the productivity of ideas that were presented was Koskhin's instructors at the Moscow Higher Technical School, Professor Viktor Fedorovich Preys, who first attentively followed the studies of the capable student and then followed his engineering research. When Professor Preys received a position in the Tula Mechanics Institute he began to publicize rotary lines in the training process, and he asked Koskhin to develop a course of lectures for 50-60 hours and constantly encouraged him to write more rapidly so that he would not become so involved in practical developments that his interest in theory would cool. Then he included Koskhin's special course in the program. The work of the designer on the theory and practice of automation was supported by Academician V. A. Trapeznikov.

"A colossal role in my destiny was played by Dmitriy Fedorovich Ustinov," recalls Lev Nikolayevich," he was not at all frightened by the fact that it was necessary to throw away old machines and replace them with rotor machines as long as this was industrially and economically expedient. Yet this has stopped and still does stop many people."

From the reminiscences of Lt Gen I. V. Illarinov, who worked with Ustinov for many years.

"As far as I can remember Dmitriy Fedorovich did not fail to pay attention to a single useful idea, regardless of how fantastic it may have seemed. He thought that constantly contributing to introducing into life all that was new and useful in science and technology was the primary duty of the manager. This is true with respect to the story of the rotary lines suggested at the end of the war by the then unknown designer who is now Academician Lev Nikolayevich Koskhin."[1]

A remarkable fact. If some important technical idea attracted D. F. Ustinov, he never forgot about it. Being the deputy chairman of the USSR Council of Ministers at the end of the 1950's he did a great deal to advance rotary lines and to various branches of the national economy, and as chance would have it he again blessed a new type size of the line--rotary-conveyor--in the middle of the 1970's. He had to deal with the Latvian Production Association for Household Chemistry, which produced excellent aerosols for removing spots from clothing, but could not satisfy the growing demand because of the difficulties in manufacturing the valves. "I will introduce you to Poshkin," Dmitriy Fedorovich promised the general director of the association, "and your troubles will end...." The rotary-conveyor line for pressing and assembly which was created by the developers in conjunction with the Riga workers makes a thousand valves a minute. About 400 workers were released in the association.

In searching for the absolute, an unlimited attraction for some one thing we frequently do not accept other viewpoints and other approaches. Many of us are not free from this shortcoming. Koskhin too was sometimes excessively categorical: "There are people who do not understand very much about economics who easily give in to the temptation of automation without thinking about the expenditures," he stated. "It is always necessary to think before making a decision about whether or not there is any point in replacing some particular production function with a machine or if it is not possible to end up in a pit of indebtedness. Take, for example, robots--the same kind of destruction!"

I asked: "Why?" The answer was detailed and convincing: "Because they create robots which copy man's actions but do not master the main thing that distinguishes him--the intellect--and therefore they have neither adaptivity in production nor rapidity of reactions. There are robots whose productivity is less than that of the machines they service. So as it turns out should they install additional technological capacities? The old ones are not sufficient! And one cannot forget about the fact that robots must be created and serviced by someone!"

To the question: "What, then?" Koshkin answered categorically: "Think about how to apply the rotary line." I responded: "If it is impossible to apply it?" "Then leave everything as it is. Sufficient productivity of the machines is an absolute requirement." And after a couple of moments of silence he added: "Of course if we are speaking about difficult working conditions, everything is simple--release the human being, even with the help of costly robots."

"If Koshkin had not been so fanatically devoted to the idea of robot construction he would not have done as much," said the designer N. V. Volkov. "I recall the following episode. I was flying with Lev Nikolayevich to Prague. The blue skies were reflected in the illuminators as if light white clouds were floating everywhere around. It looks like if you stick out your hand you could touch one. Comfort, peace...."

Koshkin's voice comes back down to earth: "You know, Nikolayevich Vasilyevich, what I was thinking about? If right alongside of the plane one were to put a rotary system into operation it would be possible to automate the distribution of food. Look how many times these girls have to walk through the cabin when they serve all of us and pick up the dishes." This was all Koshkin. He devoted his entire life to the development of rotary lines. Rather, he sees the meaning of life in them. Through the prism of the problems that have engaged him he can see all and always--at home, on business trips and during recreation. His internal unquenchable fire is electrifying and transfers energy to others.

If Koshkin had been an unyielding and strict judge only about others' solutions and theories he could have been accused of prejudice. But he was just as demanding of himself as he was of his assistants. A condemnation "ruinously" caused him to reject a very original design decision. He has a quite clear idea of automation--automation of production, and not simple planning of an automated line for a concrete item. On the basis of this he thinks that it is necessary to begin with improvement of technology and then consider possible variants for improving the organization and control of production, and only then should one begin to develop machines for automation. "If the technology in and of itself is inefficient, the machine cannot produce an effect"--this is his firm conviction.

The immense advantage of Koskhin's school lies in the clarity of his economic position and the theoretical substantiation of his developments for automation. His significant theoretical and practical contribution to production automation was highly rated when he was selected to be an active member of the USSR Academy of Sciences in 1984.

It would seem that the "happy ending" had come: he had received recognition and the ideas of robot construction had triumphed. The Politburo of the CPSU Central Committee recommended the introduction of rotary and rotary-conveyor lines into the national economy. But still it is too early to place the period at the end of the sentence. As before, we do not know who will design the lines for many branches and who will manufacture them.

"To try to do this with the forces of our design bureau and experimental production alone is like trying to eat cabbage soup with a small spoon," says Lev Nikolayevich. "In my opinion it is necessary to include in the solution to this problem some of the design forces and also the experimental and series production plants."

We are far from the idea of absolutizing this area of automation. It seems to us that in many areas of technical equipment, including in the area of mechanical processing of metal, it is necessary to have flexible production systems and robots which are oriented toward advanced technology and electronics. But it is also quite obvious that rotary and rotary-conveyor lines are effective in the most varied kinds of technology, from stamping, pressing and casting in machine building and instrument building to assembly and control of the products, in the food industry and in the meat and dairy industry where there is technology with the formation of items--cheese curds, sausages and so forth, and in agriculture.

"It is necessary to begin the work for replacing equipment with rotary-conveyor lines in those branches where the prerequisites are ripe for this," thinks L. N. Koshkin. "The reequipment of forge and press productions has been drawn out. If they were updated on the basis of traditional machines it would take an immense quantity of equipment. Here is where it is necessary to take advantage of the situation and make a technical break. And new, modern materials are simply not effective when processed by old methods. Metallic powders, plastics and metallic ceramics are oriented toward waste-free mold formation of parts.

The lack of a specialized production of rotary equipment entails inevitable losses. The enterprises are each operating at their own risk, which leads to mistakes and disenchantment. And production workers frequently get stuck on a technical problem which had been resolved long ago.

"We adults are surprising people," says the designer N. S. Mishin. "In childhood many of us assembled various machines from our toy construction sets. Even now during my free time I am glad to show my little son the parts of my toy construction set. The idea of standardization is wonderfully embodied in it. Why do we forget the impressions of childhood, and why, once we grow up, do we become so irrational? Surprisingly, unification and standardization are finding it difficult to make their way in life."

Now the All-Union Scientific Research and Technological Institute of the State Committee for Science and Technology intends to put out a catalogue of rotary lines and standardized components for them. It is also necessary to centralize their production and create plants that specialize in components and parts for rotary lines.

Progressive ideas win out, but they win out in a struggle. This did not bother Koskhin. He is by nature a fighter, and he foresaw the struggle. Many of his students were attracted by the prospect of becoming consultants and assistants for the designer, but he invited to work in the design bureau only those who, in addition to knowledge, originality of thinking and creative fantasy, exhibited courage, persistence and involvement. From the first steps

of his work on automated lines he was convinced that it was necessary to go through "no man's land," an obstacle course, and the trenches of departmental barriers. This is why he valued involvement and devotion to duty no less than capability and competence. Today the majority of his assistants are former students. He has taught them to broadly extend the horizon of ideas and defend these ideas.

FOOTNOTE

1. "Narkom Ustinov," SOVETSKAYA ROSSIYA, 1 March 1985.

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PROBLEMS OF ENGINEERING WORK DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 34-60

[Article by E. A. Melnikov, candidate of technical sciences (Kursk): "Engineering Vacuum"--Discussion. The author is 50 years old. He is in charge of the Department of Electrical Technical Equipment in the Polytechnical Institute. He worked in industry for 12 years. He has published in EKO: "Hello, We Are Looking for Talent!" (No 9, 1981) and "Twelve Principles for Concluding Economic Agreements" (No 10, 1981)]

[Text] At the April (1985) Plenum of the CPSU Central Committee it was pointed out that acceleration of economic growth rates can be achieved if problems of intensification of the economy and acceleration of scientific and technical progress are at the center of the attention of all managers. But increasing the effectiveness of production is hardly possible without radical changes in engineering labor. As was noted at the April Plenum, "we cannot recognize as normal the fact that engineering labor has lost prestige. Something is wrong here and we must increase the role and authority of the foremen, engineers, designers and technologists and increase the material and moral incentives for their labor."

Problems of engineering labor and increasing the contribution of engineering and technical personnel to the country's economy are in need of serious analysis and immediate resolution. In past years the magazine has repeatedly addressed these problems and there have been articles under various rubrics. Now the editorial staff is counting on assistance from the readers in maintaining a permanent rubric--"Engineering Labor--The Key to Effectiveness." Its timeliness is also corroborated by the decree adopted by the CPSU Central Committee, the USSR Council of Ministers and the AUCCTU concerning improvement of the wages for scientific workers, designers and technologists.

The devaluation of the profession of the engineer is nothing new. Let us imagine that the salaries were sharply increased for all engineers, and each one was given a good apartment and a Zhiguli. Well, what then? Would all the engineers be highly skilled and talented? Would all of them immediately throw themselves into inventing and introducing innovations? I do not think so.

Another fantasy. In the VUZes all the teaching positions are held by doctors of sciences and academicians, and the institutes are filled with modern technical equipment. Marble palaces with swimming pools have sprung up to replace the dormitories. To what degree would the level of the VUZ graduates rise? Most likely it would be insignificant.

So what has caused the decline in the prestige of the engineering profession and what should be done in order to return its former power?

Who Should Be Given an Engineering Diploma?

Petr Akindiyevich Titov was one of the outstanding engineers of Russia. He had a primary education. He was the son of a peasant who later became a machinist on a steamship, who took his son with him after he was 12 years of age. From the age of 16 Titov went to work as a worker in the shipyard of the Dneva Plant. Without knowing mathematics or resistance of materials nor other VUZ sciences he became an engineer of the shipyard. In 1882 or 1883 the Russian Maritime Ministry organized a competition for drawing up a plan for an armored carrier according to the established assignments, and there were two fairly large prizes. The largest shipbuilding firms of the world participated in this competition. But as Academician A. N. Krylov describes the results of the competition: "Many plans were submitted for the competition and when considering them the technical committee recognized that the first prize should go to the plan with the motto "Invincible" and the second prize--to the plan with the motto "Kremlin."

They opened the envelope with the motto and read: "The design composed under the motto 'Invincible' is an engineer of the French-Russian plant, Petr Akindiyevich Titov." Then they read: "The plan under the motto 'Kremlin' was composed by--an engineering of the French-Russian plant Petr Akindiyevich Titov.'"

And what were these armored carriers? Open the books devoted to the actions of our fleets during the Great Patriotic War and look at the battleships "Sevastopol" and "Marat."

Many outstanding engineers and scientists were not burdened with higher education, and frequently not even with a secondary education. Edison had more than 1,000 inventions and a primary education, Maksim Hiram--the inventor of the well-known "Maksim" machine gun had a primary education, Henry Ford--the inventor of the conveyor which caused a revolution in technical equipment had a primary education, Tokarev, Fedor Vasilyevich--Hero of Socialist Labor went to a Kazakh school, Morozov, Ivan Konstantinovich--the creator of pneumatic railroad brakes went to a tekhnikum. This list could be continued. So the conclusion is that a large number of people were not kept from becoming outstanding inventors because of the lack of a higher technical education.

And the second thing is that a higher technical education does not automatically make an engineer out of a person.

The opinion is widespread that the time of single inventors has passed. Today collective creativity is considered to be the basis. But collective creativity has its Achilles' heel. The collective develops a unified view of a problem. It is as though the workers invest their knowledge and logical capabilities, and average knowledge, methods and approaches that are accepted by the collective appear. This condition guards against interruptions, but the members of such a collective stifle the brilliance of individual intuition and the capability for original thinking, departure from views that are generally accepted in the collective, and the envisioning of problems as a whole. Brilliant individuality can be mistaken more often than the collective can, but then the thinking of the individual is more flexible than collective thinking, and it can more rapidly find a fundamental solution to a problem. Therefore there is simply no meaning to the question of who can carry out a task better: one person or 10 people.

Engineering work is also creativity. It is a process which leads to fundamental solutions in the creation of new material objects. Everything else is the work of technicians. It can be defined as follows: solving known problems by unknown methods and utilizing unknown technologies. Does a technician need an education? Undoubtedly. Does a technician need breadth of views? Certainly. When it is serious its work becomes engineering work. Here one cannot draw a clear boundary, but it is possible to make a separation. The analogue of an engineer is the inventor. The analogue of a technician is an efficiency expert.

Thus if one looks at the matter not in a formal way, but in terms of its essence, a higher technical education still does not give a person a right to be called an engineer. After all, completing a sports school does not give one the right to a rank as a sportsman. A sportsman's rank is given only through the results of competition, and a sports school only helps the individual to obtain this rank. Sports work toward the final results. But in determining the qualifications of an engineer we stop in the middle, and not with the final result. The fact that a person has spent a certain amount of time in a training institution still does not define his qualifications. It is necessary to have engineering competitions which would be the only way of granting the right to confer on someone the title of an engineer.

I suggest calling graduates of the present-day technical VUZes not engineers, but technicians. A person would come to work at an enterprise and begin to work as a technician. At the enterprise he would select the subject for his engineering project. How would he select the subject? Look at the branch and plant lists of subjects of invention and efficiency work. Having selected a subject he would develop a plan for it and technical documentation. Under his technical supervision the necessary device would be manufactured physically and put into operation.

After this one submits a design, blueprints, explanatory notes, a description and photographs of the operating machine, and an official reference concerning its economic and other effects. All these materials are submitted to the

corresponding VUZ where they are studied and a defense date is assigned. Only as a result of the defense (after all, it is possible for a person not to develop the machine himself, but to do it in a roundabout way) is the title of a diplomaed engineer conferred upon the individual.

Who Should Be Called an Engineer?

The significant devaluation of the profession of "engineer" took place also because recently engineering positions have come to be defined very loosely.

I once worked as a head designer and I know many head designers and their enterprises. Let us take some average head designer's division of a large enterprise of an electoral mechanical profile, a person about 50 years old. Let us look at his staff. In the majority of cases it turns out that the electricians comprise an extremely insignificant part of the workers in the division. The remaining majority are various people: graduates of an agricultural institute, a forestry institute, a construction institute...even the pedagogical institute is represented. Only medics are missing. And the division manages to do its work. It is even among the leaders of socialist competition.

But what are the senior engineer of the personnel division, the senior engineer of the supply division and the senior engineers of other administrative and management services? A woman works at the plant and plants flowers and waters them. Who is she? A gardener? No. An engineer for greenery. So why not call the senior cook an engineer for preparing food? But what is an engineer in socialist competition and where are they trained?

Or what does the prefix "engineer" mean when added to the word "economist"? Is it really so bad for an economist to be simply an economist that in order to placate him it is necessary to add the prefix "engineer" which means nothing? Why not junior economist and senior economist? Haven't we come up with a lot of different kinds of engineers?

Today technicians fill up to 40 percent of the engineering positions. And when workers in a large design division with 700 people were given anonymous questionnaires, 42 percent of those questioned who hold positions of engineers and senior engineers asserted that in their positions a higher technical education in general was irrelevant and that during the time of their work they had never once used the knowledge they had acquired in the VUZ.

We are drowning in a sea of normative documents that register, prescribe and regulate the role and position of subdivisions, services and officials. And everywhere we look there are engineers, engineers, engineers.... The ratio between technicians and engineers has dropped to practically one, and in certain organizations there is one technician for every 10 engineers. This means only one thing: the majority of engineers perform the work of technicians. The ratio between engineering and technical workers is an objective pattern which does not depend on our desires and instructions. In various branches of management the actual volume of technical work exceeds the volume of engineering work from 3- to 10-fold. But we have practically eliminated the technician with the low wage level. Therefore the technician

will not stay in his job unless he is a terrible sluggard. If he can he will "join the engineers" and if not he will take a labor job. In both cases the earnings are higher. So if a person is performing the work of a technician let him be called a technician, regardless of where he graduated. After all the qualifications are important. If a person who has graduated from a technical VUZ is performing the work of a technician, let us not call him an engineer. Let us keep the same wages since the work has not changed.

Let us discuss one more strange superstition which is now regarded as an unquestionable truth. Its essence is that in the age of the scientific and technical revolution the majority of jobs should be held by specialists with higher educations. But what is a higher education? As follows from the very term, this is a high level of education which the society can grant to its members in a given stage of its development. And that is all. In our day the degrees of doctors and candidates correspond to truly higher education. The ratio between specialists with higher, secondary technical and vocational educations during the past 100 years have remained approximately the same. Only the absolute amount of the initial calculation has changed.

Let us look the truth in the eyes and not comfort ourselves with the notion that a higher education is more available and widespread. One can print enough diplomas to satisfy everyone who wants them, but this will not help to intensify the economy.

Sitting before me in an examination is a serious individual, a correspondence student, the chief of an electrical shop of an ore-enriching combine. He does not know the complete answer to a single question. He has not solved the problem. I try to understand why. Of course the work of a shop chief takes a good deal of time and spiritual energy. But still. I try to understand the reason for his lack of knowledge. The answers are disheartening.

"Why do I not know the question 'stability of a nonlinear system'? And why do I need Vanderpol's equation? I have been working for 15 years now. I have traveled the path of a rank-and-file electrician, brigade leader, foreman, shop chief and never in my life had I had occasion to solve one integral equation. During the past 5 years I was awarded an order. So it is not my job...."

"Then why are you studying?"

"What do you mean, why? They have promoted me to management. One cannot hold this position without a diploma. And in general it is all right to study in absentia, but you cannot eat that way.... I do not need integrals and differential equations!"

A tricky question: Should a shop chief be an engineer? What does he have to invent or design?

With the increased complexity of production the differentiation of workers also increases. Today it is already possible to divide production specialists into the following quite well-formed and separate groups.

1. Creators of new objects of technical equipment and technology--engineers.

2. Organizers of the production process at all levels. These are foremen, brigade leaders, chiefs of shops and services, and directors.

3. Specialists in the operation and repair of technical systems.

4. Scientific associates.

5. Specialists in economics and finances.

Of course one cannot draw strict lines of demarcation among these categories of specialists and to some degree they overlap one another. But the goals and methods of their work are principally different and require different forms and methods of training. We are now training so-called specialists of a broad profile. A little bit at a time. This approach, taken to its logical extreme, requires something like universal transportation institutes. In these during the course of 4.5 years they would give courses in aircraft, ships, diesel locomotives, steam engines, electric engines. And the students would master the concrete specialty of steering a ship or an aircraft locally, during the process of their year's probation period....

Perhaps one should first of all think about purging the title of the duties of the word "engineer" and introduce strict orders here so that each term defines its own maneuver. The idea of an engineer is now too universal. A jack of all trades.

How and What Should the Future Engineer Study?

The first four categories of specialists listed in the preceding section are trained through the system of polytechnical or technical VUZes in the various branches.

The modern technical or polytechnical institute has actually retained the structure and methods of teaching from the beginning of the century. But the institute was intended only for producing those specialists whom we call engineers and nobody else. Why does an engineer need a higher education if, as we have already said, many great engineers have done without one? Simply for the same reason that an artist goes to an art academy. The technical equipment, world view and erudition provided by a higher specialized education have created a powerful support for talent.

In those days the engineer was either a designer or a planner or a researcher. He never was involved in managing people or organizing production or questions of organization of current affairs. People were managed by foremen, contractors, over whom there were technicians, and at the top of the entire pyramid was the engineer. The engineer created, planned and investigated, and then explained to his subordinates how to do one thing or another. There were not many VUZes, the contingent was small, there were people to select from, and the table of distribution did not depend on the number of students. The higher technical school struggled for knowledge and not for the success rate, and it coped with its task.

To illustrate the demands placed on a graduate in those times it is sufficient to refer to the recollections of Academician A. N. Krylov. In 1898 he visited the Korolevskoya Higher Technical School in Berlin. While becoming familiar with the schools he also became acquainted with the student projects. Thus, for example, Professor Flam showed me the project of a student who was preparing to become a machine builder: he had designed a cargo steamship which displaced about 2,000 tons of water with an engine with 1,300 horsepower.

"For the body he drew up on a scale of 1/50 these blueprints: 1) theoretical with all the calculations, 2) plans for the deck and hold with an indication of the overall area, 3) a longitudinal cross-section, 4) a model indicating the sizes of the joints (scale 1/35), 5) a design blueprint of the deck with calculations and 6) a division of the ship into segments with calculations justifying them.

"From the theoretical blueprint in the shop at the school they manufacture a model in which the student separates the grooves and joints of the planking. For the mechanisms this student had to draw up detailed blueprints with detailed calculations. There were more than 40 pages of these blueprints with an indication of all the sizes, and additionally a separate blueprint showed the installation of the engines in the ship, the plan of the corridor for the propeller shaft with all of the bearings, gaskets and so forth, boilers with their foundations and complete blueprints of the pipelines.

"When I asked how much time this work had taken him he answered me that for the past 2 years he had had to work without stopping from 8 in the morning until 8 in the evening."

And here are some examples from the present day.

The defense of a diploma project. The student has developed a design for a machine. It has everything: technical safety, the economic part, the calculation of some component, blueprints of the external appearance and detailing of a component. But this project not only cannot be used for constructing a machine, but it could not even be used as a basis for designing one. These diploma projects are nothing other than insignificant modifications of preceding designs. Their goal, perhaps, is testing: Have we taught the student anything at all? Can he at least read a blueprint? And it is certainly no secret that a multitude of "specialists" in diploma projects have come into being. And their prices are moderate: for complete preparation of a project--from 200 to 300 rubles. Many correspondence students are glad to take advantage of this. Nor do evening students shun them either. Even some day students. There is a demand--and there is a supply.

With the sharply increased complexity and concentration of production the existing system has ceased to satisfy the demands of the present day. Nobody has any objections or doubts about the fact that an aircraft is designed by a person who has completed one VUZ and is controlled in flight by someone who has completed another VUZ. Everything is in the policy of things. There

would be an objection if the problem were stated so that we would say to graduates of one and the same department: "You will fly the aircraft so you design it." But why do the same objections not arise with an absolutely analogous statement of the problem when one of the people who has graduated in the specialty "industrial and civil construction" goes to a planning institute while the other becomes a supervisor? I daresay that the supervisor and the engineer in charge of constructing a steam turbine have much more similar problems and tasks than do a supervisor and an engineer who designs buildings. But people who have received one and the same specialty with the same success are sent both to design bureaus and to the plant to manage people.

Let us take the specialty "processing of metals by cutting." Upon completing the institute the graduate is to become a foreman or a shop chief. In the institute he studies both the theory of cutting metals, and resistance of materials, the theory of processing under pressure, electrical equipment, hydraulics, and many other things. So when he comes to the shop is he to sit down at a machine tool? No, he will be in charge of the people who work on these machine tools. The main object with which he has to work is not machines, which he has studied for almost 5 years, but people, whom he has not studied for a single hour. And where is the psychology, pedagogy, art of management, business gains and sociology--everything that will be much more necessary in his work than mathematics or the resistance of materials?

Is it really not clear why it turned out that way? It turns out that it is not clear. At the basis of this lack of clarity lies an approach that was formed at the beginning of the century. Then the art of management was defined as a fundamental knowledge of the work which you wish to give the workers and the ability to do it in the best and least expensive way.

After lengthy and extensive investigations of the activity of many firms the Carnegie Institute in the United States came to the conclusion that only 13 percent of the firm's success depends on the technical provision for production and the skills of the workers, and 87 percent depends on the people's attitude toward their work. This means that if we were able to produce first-class engineers with a profound knowledge of equipment and technological processes who were capable of operating any machine tool and performing their work better than any worker, if we were able to give them workers with high skills, all this would comprise only 13 percent of their success.

Thus for the manager of a labor collective it is several times more important to know and to be able to form the attitude toward labor of the collective of which he is in charge than it is to know all the fine points of the technological process and the equipment. The latter is also important, but it is far from being the main thing.

Let us turn to the sources of this phenomenon.

In 1910 an article by Francis Taylor with the curious title "Why Plant Workers Do Not Like Recently Graduated Engineers" was published in Russia after being translated into Russian. Taylor thought that in order to be a manager a person must have the following qualities in order of importance:

intelligence, energy, education, that is, special knowledge, quickness and health.

Notice the fact that Taylor put special knowledge in third place. And there were several reasons why plant workers did not like to accept recent VUZ graduates.

1. Graduates of institutes do not know workers and are not able to work with them. It is quite impossible to teach workers from above or theoretically. Taylor writes that "until a person becomes familiar in the most immediate way with workers, their modes of thinking and their views about things, he will not feel very comfortable in the role of the boss."

2. Graduates of institutes are not accustomed to collective, joint work with people. In the institute they learn nothing about joint work and they study individually, with the exception of football games.

3. Graduates of institutes have neither the necessary character nor the discipline necessary for production activity. With the help of patronage from teachers and mentors the students essentially work when they wish to and as much as they wish to, and the only control of that activity are examinations and reports. In the institute young people have the kind of freedom that they cannot have in production or if they do they will simply mess it up. In production they fall into conditions whereby their activity and time are strictly scheduled and regulated by somebody else.

What did Taylor see as the way out of this situation? He thought that after finishing the first course the students should be mandatorily sent for a year or two to the plant as workers. "Then they will begin to develop the character that will make them capable of doing unpleasant and uninteresting work. And this will be their greatest lesson. At the enterprise they will see that only energy, firmness, courage, tact, decisiveness and patience will produce success in plant and engineering activity."

This understanding of the situation developed, as we can see, as early as the beginning of the century.

I know a woman who was the chief of the experimental shop in a large sewing association. She had a seventh-grade education. She had been working in the association for 25 years. Her path: student, worker, brigade leader, foreman, shop chief. The shop is one of the best not only in the association, but also in the branch. She is the deputy of the republic's supreme soviet. In general everything is fine. When they asked her the question: "What is your goal when you go to work?" she answered: "On the way to work I think about only one thing: What must be done today in order for the work to give people pleasure, so that they will be genuinely involved in their work, and what must be done so that our joint labor will have as its result not only a material product, but also a spiritual product which is called happiness." These words should be emblazoned in gold letters, as the point of the work of any manager.

In this example we are dealing with one of the self-taught geniuses who has gone through the main science--human studies, which is not taught in a single institute--through her own experience and her labor life. But there is more to the subject. The regular commission discovered that our heroine has only a seventh-grade education. It was suggested that this blatant inconsistency be eliminated by her completing the 10th grade in evening school, and then a correspondence institute. And so this meant 10 years more work! And why did she need it? She refused and transferred to a different job. Now a person with a higher education is in charge of the shop, but it is going downhill.

Why are we convinced that talent is needed in order to "inflame the hearts of people with a word" but in order to inspire people to labor feats it is sufficient to know physics, mathematics and other subjects that are envisioned in the training plan which is approved by the main methods administration of the Ministry of Higher and Secondary Specialized Education. Is this logical?

Are We Not Confusing Technique With Science?

The old engineer, as a rule, had to be something of a scholar. The volume of scientific knowledge at that time was not great so the educated specialist had to become a scientific encyclopedist to the extent that he could. In our day science and technology have expanded immeasurably. Physicists from various areas do not understand one another. So what about the scientist and the engineer! There has even appeared a semiserious turn: "the scientific and technical time constant," whose amount ranges from 25 to 100 hours. This is the time that is necessary to talk and argue in order for people to understand what you want. Now real science and engineering have advanced so far that there is a need to draw a line between technology and science, because God only knows what would happen without such a delimitation.

Science is a comprehension of the laws of the surrounding world. Technology is the creation of objects in material culture. Science is the category that is largely noneconomical, although we place the corresponding demands on it. Technology is a category that is purely economic and everything must be calculated here. Their interaction consists in the fact that technology takes advantage of the laws discovered by science, and today's science is unthinkable without the most complicated technical systems which make it possible to penetrate ever more deeply into the mysteries of nature. In spite of the closest interconnection and interdependency, science developed according to its own internal logic and technology develops according to its own. And this is not surprising. For they have different tasks. But if now there is a fairly well-developed philosophy of science, there is an absolute lack of a philosophy of technology.

One of the reasons for the negative phenomena in industry is the insufficiently effective introduction of scientific discoveries and practice. Excuse me, which discoveries? At least 90 percent of the new technical equipment that is created is based on scientific truths which were known 50 years ago. Technical equipment is created not on a scientific basis, but on its own basis, through new combinations of known scientific truths, and it is based on experimental-design developments, on purely engineering and inventive creativity.

About 20 years ago one scientific research institute was given the task of creating an instrument for multichannel registration of a signal. The main problem was that for a minute the axles and the guide rollers of a system were to rotate with high stability. The development was assigned to one of the laboratories. In order to solve the problem they brought in the latest achievements of electronics and electromechanics. Optical photocomputers, quartz generators, electronic timers, the most complicated electronic autoregulation systems.... The laboratory was among the leaders. Four authors' certificates were acquired and 12 articles were published. The chief of the laboratory became a coresearcher at one VUZ and was preparing to defend his candidate's degree. At this time one of the workers--a handyman from the experimental shop--said to the developers: "But why are you tormenting yourselves? Put a good flywheel on the drive shaft and a mechanical regulator." This suggestion, which was not filled with the spirit of scientific and technical progress, earned icy contempt. A system was created: two large supports with numerous instruments, flashing with the lights of indicators. Wonderful prizes were received for the creation of the new technical equipment. Somehow the device was based on four inventions. The laboratory chief defended his candidate's degree. Then he worried about producing this instrument while the operator was worried about repairing it. Then somehow or other a foreign firm obtained an analogous instrument. Its stability was higher and its durability was much greater. One small block. They opened it up. The drive component which provided the high stability of rotation contained a flywheel weighing 12 kilograms, a mechanical speed regulator like the one found in a phonograph, and a simple electric motor....

Now let us ask the questions. Which variant is more advantageous to the national economy? The scientific and technical monstrosity which is shoved into two cabinets, or the device which is 100 times simpler and has high technical characteristics? And which variant is more advantageous to the developers? Can you really defend a dissertation with a simple flywheel or receive a prize for new technical equipment?

From the standpoint of the national economy the best technical object is the one which solves the technical problem with the least expenditure of resources. Maximum simplicity in achieving the goals that are set is the alpha and omega of technology. But for science the alpha and omega is the reliability of the knowledge that is achieved. Different goals and completely different methods of achieving them.

Let us imagine that this delusion had disappeared. There are two branches of mastery of the forces of nature--science and technology. There is an academy of sciences and an academy of technology. There are doctors and candidates of sciences and there are doctors and candidates of technology. When defending a dissertation in science it is necessary to have scientific opponents, for only in argument does the two truths appear, and the individual must prove that his conclusions are true. In technology the truth is the object itself. Go, look, touch and measure. No other evidence is necessary. The technical object that is created meets the requirements place on it or it does not. The criterion for qualification is the effectiveness of the technical solution,

and the simpler the solution the higher the qualification. And this corresponds to the demands of the national economy.

But what does the modern situation lead to when in practice technology is called science? When demands are placed on technical solutions which are completely inapplicable to technical equipment and are acceptable only in science?

Let us say that a brilliant engineer has created a system by joining together well-known scientific tenets in an unusual combination and applying well-known methods of calculation and planning. Can he become a doctor as a result of this? No. The first question that will be asked him is: But where is the science? You are claiming the title of doctor. If the object is so effective and significant, obtain the State Prize, the title Hero of Labor, and so forth. But what does science have to do with this? What does a scholarly degree have to do with this? A curious situation. A graduate student who has not created anything significant for the national economy, who has investigated a mechanism of internal friction of some alloy, has explained the peculiarities of this friction on the basis of a mechanism suggested by his supervisor and has successfully defended it immediately receives a significant wage increase, the right to additional space and the status of a scientist which is prestigious in society. The engineer designer who has created a new machine which produces a great national economic effect and has received an order in recognition of his services receives none of the advantages which the successful graduate student does. They are not intended for him. There follows only one conclusion: one of the major impediments to technical progress is the fact that in the area of prestige and material benefits the labor of the scientist and the engineer are far from equal.

People could reply to me: in the provisions concerning discoveries, inventions and efficiency proposals it says that "authors of discoveries and inventions which are of great national economic significance have the right to submit these discoveries and inventions under the established policy on a level with dissertations for defense to fulfill the requirements for scholarly degrees of candidate and doctor of sciences, and for the defense of the doctoral dissertation it is possible to allow people who do not have the scholarly degree of candidate of sciences but who are known for their discoveries and inventions. The authors of discoveries and the most important inventions can be awarded a scholarly degree of candidate or doctor of sciences without defending a dissertation in exceptional cases." How many inventors have been awarded scholarly degrees simply because of inventions which have produced a great national economic effect? The number of them is less than the number of mountaineers who have climbed the Himalayas. Moreover, during the five-year plan the higher education committee has rejected a large number of dissertations which solve important national economic problems with the formula of experts: the technical significance is undoubted, the scientific contribution is questionable. In a word, a scientific contribution is demanded here and now! The requirements of science are placed on technical equipment. One theoretical physicist, a member of the VAK, explained that a dissertation is not a collection of author's certificates, and, referring to Landau, he said that he does not have a single author's certificate.

These undeviating dissertations are nothing other than the labor of Sisyphus, something sciencelike which is needed neither by the state nor by the author. How much is already being written about this? Frequently on the pages of the press we protest against the fact that engineers and scientists are sent to vegetable bases and for agricultural work, taking them away from their main jobs and causing harm to the economy. But here too there is at least some advantage. But this "scientizing" on which most talented people spend years of labor generally produces nothing for the national economy and is essentially a squandering of a most valuable resource--human genius. If the solution to a technical problem does not require new scientific discoveries and new scientific methods, there is no point in asking the authors of the solution to provide these. "Scientization" means tortuously coming up with "new methods," comparing them with existing ones and deforming them in such a way that they look more effective than the preceding ones. After all, we do not reject a new picture by an artist because it was painted with familiar, traditional paints. By such an analogy a scientist can be compared with a person who has created new paints, and the engineer--with a person who has painted a picture with these paints. If in so doing he can create new paints this is to his advantage, but this is really not necessary.

Incidentally, attempts to "turn science in the direction of practice" and to force it to engage in technology causes obvious harm to fundamental science. I have a friend who is a physicist. He investigates the mechanisms of resilient motion of dislocations in the solid state. His results are important and interesting. They make it possible to create super resilient alloys which are extremely necessary to technology. So it is required that he provide for an introduction and an economic effect. But, after all, the economic effect is the prerogative of technology and not science, and it is created only with concrete technical devices, and not through scientific articles. Figuratively speaking, the economy comes not from the principle, but from the body of the machine. So for several years my friend has been engaged not in "pseudoscience" for he has real science, but "pseudotechnology": he is trying to design furnaces for these alloys and systems for automated control of them. Naturally, extremely imperfect objects are obtained for he is no engineer. And who knows who many scientists there are digging through absurd reference works on introductions and economic effects who are spending their value time in far from the best way?

Thus a formal, compulsory merging of science and technology into something unified called the scientific and technical complex frequently leads to some kind of unjustified overexpenditure of human resources. Engineers waste their efforts on pseudoscience, and scientists--on pseudotechnology.

But What Is Primary?

Bringing technology under the shelter of science has led to the appearance of innumerable scientific research institutes although science in the true sense of the word does not exist in them and cannot. What kind of scientific discoveries can be provided by the Central Scientific Research Institute of Experimental Construction, the Scientific Research Institute of Energy and

Hydrotechnical Structures, the All-Union Scientific Research Institute for Construction of Main Gas Lines, and so forth?

They should have and do have as their products not science, but technical solutions. This kind of mimicry of science enables many scientific research institutes to provide nothing for the national economy for many years, taking refuge in the tenets of true science that a negative result in science is still a result!

There is the Scientific Research Institute Elektroapparat, the Scientific Research Institute of Machine Tools and so forth. In addition to these there are the design bureaus of Ilyushin and Tupolev. Can anyone make it clear to me why the development of a switch, a drilling machine, or a cutting edge is science, but the development of the IL-62, the TU-154 and the MI helicopters, which are immeasurably more complicated than machine tools and switches and require much more intelligence, have always been design work? It is precisely by taking refuge under the shelter of science that some technology has been transformed into a dependent on society, living in poverty on the rent from degrees and titles. And not only a dependent, but sometimes even a real pest. It does nothing and gives nothing to others.

Why has this kind of mimicry become possible? The idea that equates the concepts of "research" and "scientific" has played a role here. It is not without reason that there are no scientific research design bureaus, but there are scientific research institutes. But research can be both scientific--searching for a new scientific truth, and engineering--searching for optimal technical solutions. The message and goals of these searches are quite different. The classical example of engineering research is the story of the creation of radar stations with centimeter and decimeter ranges. During 1941-1942 this task was assigned to the Massachusetts Institute of Technology and a number of other organizations. At that time there was no science which would make it possible to calculate the elements of wave tracks. But the technical task was resolved. Hundreds of thousands of various elements were manufactured and their parameters were measured. From the empirical results they drew up tables, homograms and recommendations concerning optimal designs. The reference work on wave guide equipment which was created on the basis of this research was translated into a number of languages, including Russian, and served for 30 years as the basic material for designers of radar systems. From the standpoint of science this is not a result. It is bare empiricism and not science. One could not defend a dissertation from this. From the standpoint of technology this is the most real result. How it was obtained is another question.

Science can go around in circles, end up in blind alleys, return, and change the direction of research. This is its right. But if when doing this it begins to involve technology and, consequently, industry as well, there is chaos. Technology does not have the right to such pirouettes, for if it did it would destroy industry and the economy.

It would be interesting to know if we would have anything better than the stone ax if technology could not create its own objects without the blessing of science. Historical documents show that even in the 14th century in Rus

there were clock shops. Thus the first chronicle entry concerning the creation of clock towers in Moscow dates from the year 1404. This, excuse me, is 300 years before the Academy of Sciences was founded.

As a result of the confusion of the concepts of science and technology, the path for creative growth of the engineer as an engineer if not closed off, has been limited to the size of an eye of a needle. Only two side paths have been left for him to grow. Either to be in charge of people or to change to a VUZ or scientific research institute and calmly engage in "scientific growth." As a result, in the area of technology, which is the basis of industry, there is an outflow of talented and skilled people, and a dangerous vacuum is being created which can have catastrophic consequences.

Therefore the introduction of order into science and technology in the country must begin with a separation of science from technology. Science is scientific, and technology is technical. We must resolutely clear away the blockage of technoscience which has taken refuge under the shelter of science in order to ensure its easy existence. The people who are released, regardless of their professions and strictly in keeping with their actual qualifications will be drawn into socially useful labor in the sphere of production.

So how do we fill the engineering vacuum?

In July 1984 EKONOMICHESKAYA GAZETA published recommendations approved by the State Committee for Science and Technology on 31 May 1984 which envisioned the possibility of creating temporary scientific production collectives for solving concrete national economic problems.

But so far such collectives are not being created because many legal and organizational problems have not been resolved and because of departmental separation. More than 200 scientific research institutes and design bureaus are engaged in the development of automated control systems for various departments. What department is not engaged in the development of springs, cogwheels, shock absorbers and other small general technical items! Scientific research institutes of dozens of ministries are dealing with the transportation of solid materials through pipes in the form of pulp or dust. For almost anything can be pumped through pipes: flour, cement, ore, and the initial components for chemical, metallurgical and other productions. The funds are disbursed and not a single one of these scientific research institutes is able to acquire complicated experimental equipment. They simply cannot afford it. Frequently they cannot obtain eminent specialists either, or even simply good specialists in this area. And yet the staff units must be filled. And they are filled. As a result, they are not capable of effectively solving those technical tasks for which they were created. But after all it is necessary to do something. And so they resolve trivial, immediate technical problems.

Additionally, there is one other factor which leads to a dispersion of forces and funds. Let us take this example. Automated systems for controlling production processes are being introduced everywhere. One of the most important components of these systems are the input transformers which are

simply called monitors. They measure the temperature, humidity, pressure, in a word, everything that characterizes the technological process. Figuratively speaking they are the eyes and ears of the automated control system. The majority of ministries are developing monitors in their own organizations. For one and the same parameter can be measured by various methods which are based on the most diverse physical processes. Thus in order to monitor the quality of a welded seam it is possible to use ultrasonic waves, gamma rays, electric current and an electoral magnetic field. The temperature can be measured by at least 15 devices, the humidity--by 5, and it is impossible to count the number of ways that the chemical composition can be measured. What we are saying about monitors pertains also to processing equipment which is included in the automated control systems and which is being developed and created by at least 10 ministries. The codes differ, the languages differ, and the components right down to the joints differ. as with the monitors, there is practically no interreplaceability. How would you handle a problem of military actions if each machine gun required its own individual charge which could be used for nothing else, and each rifle and pistol had to have its own kind of cartridge. Yet this is precisely what the current situation in industry reminds us of. Every developer and every manager is on its own.

As a way out of the situation I suggest gathering all developers of new technical equipment and technologies into a unified striking course. By developers here I means specialists who are capable of creatively and comprehensively solving significant problems related to the creation of individual components, systems and sets of new technical equipment. Let us call this alliance of creative engineers the Union of Soviet Engineers. It would be a nondepartmental organization under the jurisdiction only of the USSR Council of Ministers and it would have all the prerogatives of a creative association such as the USSR Union of Writers and the USSR Union of Artists. A member of such an association is only a worker of the association and at an enterprise or in a design bureau he can work only if he is sent there from the association. The association would have its own academy of technology, printed publications, higher educational institutions, design bureaus and experimental enterprises. The president of the association would participate in the government with the rights of one of the deputy chairmen of the Council of Ministers.

The goal of the association would be to obtain the maximum national economic effect from the technical objects that are developed and utilized. The basic unit of the association would be the creative brigade of engineers created for performing specific engineering work. After the completion of the work it would disperse. The payment of the brigade would be strictly according to the final national economic result. Therefore the amount of the remuneration would not depend on the number of people in it but only on the cost of the project, in keeping with its national economic significance. Of course, such brigades are one of the possible organizational forms. Just as an artistic council determines the cost of a picture on the basis of its merits, the cost of planning work would be determined on the basis of the technical-economic or technical-social requirements by the technical and economic council.

Competitions would be declared for the projects. The contract would be given to the person or persons who submitted the project with the greatest national

economic effectiveness. In order to prepare the competition projects the participants in the competition could be given creative leave, facilities and the opportunity to carry out the competitive products using the data banks of the association and conducting experimental research.

Numerous scientific research institutes and design bureaus would be turned over to the Association of Engineers. The creative brigade would be assigned the corresponding design bureau and wage fund for planning and research work. In this case the number of workers of the design bureau would be determined not as a permanent staff, but as the number necessary to perform the specific job. During the time of this work the creative brigade and the workers in the design bureau would be paid not all of their wages, but an advance, for example, 40 percent of their wages. If in the plan there were mistakes and it would be necessary to correct them, the payment for this would be made out of the 60 percent which has not yet been paid. After the object was released for operation or startup into a series all the rest or part of the money would be distributed among the workers in keeping with the coefficient of labor participation.

If the creative brigade had been able to reduce labor expenditures on the planning and creation of the objects, half of the savings would go to the state and half to the union. Some of the funds obtained by the union would go for awarding bonuses to the creative brigade.

Let us consider as an example the following situation.

Let us say that it has been suggested that they design a plant for producing railroad sleeping cars. The cost of the construction of the plant is 20 million rubles, and the cost of the planning work is 1 million. A creative brigade has been formed. The plant's plan envisions an impregnation shop with 10 large autoclaves. Their overall cost is 5 million rubles. Then one of the members of the brigade comes up with the idea of using an acoustic radiator in the autoclave. The speed of impregnation increases 10-fold. This means that they need not 10 autoclaves, but one. The construction cost is reduced by 4.5 million rubles. That means 2 million for the state and 2 million for the Association of Engineers. The association pays the creative brigade a bonus which is the same as with inventions--2 percent of the savings, that is, 40,000 rubles. But the volume of planning work is also reduced. The difference in the wages for planning work is transferred to the brigade and it can dispose of it at its own discretion.

The brigade has completed its work and everyone has left. During the period when a member of the union is not working the union pays him some kind of salary if the interruption has taken place because of the fact that the union could not find him work. The engineering degree of the member of the union determines only the work which she can perform in the brigade, and not the amount of payment. Moreover it determines the amount of his salary when he is on leave, creative leave or when he is forced to be inactive.

Any specialist can be a member of the association, regardless of his education, scholarly degrees and titles, who has proved in practice his ability to solve significant technical problems, which provide for obtaining a

significant economic, social or other national economic effect. The association itself confers degrees and titles on these members.

It would be most expedient to classify members of the society according to the International Classifier of Inventions (MKI). The association would have a databank for information machines which would include all data concerning the members, indicating the work they have done, their inventions according to indexes of the MKI and their qualifications. Upon completing the next development the results of the work of each member of the brigade would be included in his unit of the bank. In a word, the system is completely analogous to the Sirena system which is used by Aeroflot. If a need has arisen to form a creative brigade of specialists with the corresponding qualifications or there is a need to add to some brigade a specialist with a new technical area, it is sufficient to enter the necessary MKI indexes into the information search system. The Association of Engineers includes introduction firms which we have discussed so much with so little result.

The association provides paid consultations and assistance in solving various technical problems on orders from enterprises, ministries and departments by sending its specialists there. It renders assistance to inventors in realizing their inventions, regardless of whether or not they are members of the association.

In general no problems arise when specialists of any profiles are brought together. The association can send its engineers to institutes of the Academy of Sciences for solving technical problems that arise there and the Academy of Sciences sends its scientists to subdivisions of the association in order to solve scientific problems that arise. The Academy of Sciences and the Association of Engineers create combined brigades for solving problems of applied science, that is, transferring the new knowledge that has been obtained into technical equipment. It is important to provide for mobility of the members of the association, who are living in various cities, so that the necessary specialists, in order to perform one job or another, can come with their families and live in a place where the work is being done for a couple of years or however long they are needed.

Such a solution can quickly fill the engineering vacuum. With interesting, lively creative work with the same privileges as in science, many candidates and dgineering vacuum. With interesting,
lively creative work with the same privileges as in science, many candidates and doctors of sciences will move to the association. Thus technology and science will go hand in hand along the path of scientific and technical progress.

Possibly my observations and ideas may seem subjective, but the problem of engineering return, increasing the role of the engineers in scientific and technical progress and effectively organizing their labor is so crucial that I think every engineering and technical worker feels this. Just as they know that these problems are being solved too slowly. I am sure that there are

also other points of view and other suggestions. But there is no doubt that two large groups of specialists--the creators of new technical equipment and technology and the organizers of production--largely determine the achievements in the area of the economy as well as its "hot spots."

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HIGH DEMANDS PLACED ON PLANNERS

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 61-71

[Article by M. A. Yartsev, candidate of technical sciences, director of the Chelyabinsk State Institute for Planning Metallurgical Plants (ChelyabGipromez) and S. A. Shenkman, deputy chief of the technical division: "Limitations on Getting Ahead"]

[Text] Project translated from Latin means "thrust forward." Planners are at the cradle of technical progress. For the plan determines in a decisive way the appearance of future production, its technical and economic level, the quality of the products that are produced, the conditions for labor, its productivity....

For a long time planners were called upon to equal the best models. Today this is not enough. The April (1985) Plenum of the CPSU Central Committee calls for the new objects to be better than the old ones by the time they are put into operation. The decree of the USSR Council of Ministers, "On Further Improving Planning Estimates and Increasing the Role of Expert Evaluations and Author Supervision and Construction," which came out at the end of January 1985, orients planners toward a radical improvement in the quality of plans and extensive application in the plans of progressive technologies and equipment, advanced methods of organization of production, labor and management, and a call for utilizing the latest achievements of domestic and foreign science and technology.

So far we do not always manage to do this. Why?

Who Sits at the Wheel?

The first of the limitations on getting ahead is personnel. Of the 1200 people working in our institute only 300 are men and the rest are mainly recent graduates of VUZes. Unfortunately they do not teach them to be planners. A good, intelligent engineer, and not just any engineer, but one who has certain inclinations and capabilities, becomes a planner only for a couple of years while he is working in a planning institute. And then throughout his life he must improve and grow.

People are unwilling to leave production to go to a planning institute, and then they only go for high positions. There have been several cases where the production workers have worked here as leaders of groups and technological divisions, but still they have returned to their "hearth and home." "Tne work," they explain, "is interesting, but it is difficult and the pay is poor." The differentiated Ural zonal coefficient, which is received by production workers, does not yet extend to planners. The outflow of highly skilled specialists from planning organizations of the Urals has increased during the past decade and a half, and at the same time the influx has decreased. Savings on wages for planners in the final analysis end up to be large economic losses.

The cost of the plan is directly related to the planning personnel.

An Expensive Cost Reduction

The cost of planning ferrous metallurgy facilities, and these, as a rule, are large and complicated complexes, is about 3 percent of the cost of construction and installation work (in the FRG--14 percent, in Japan and France--15 percent, and in the United States--16 percent of the cost of the object; for us construction and installation work comprises 40-50 percent of the cost of the object). And it is not simply a matter of low percentages. Why is the cost of construction and installation work used as the basis?

For instance a shop is being planned for producing special grades of steel. In order for it to be "on the proper level," the planner must be familiar with the developments of science, and "see" an order from the machine builders new equipment which is not produced in series, weigh all of his decisions on the scale of economics, take into account the requirements of ecology, and many other things. Only after this is it possible to properly carry out the construction part of the shop. But in the price references for planning work they only pay attention to construction and installation. As though the final goal of capital construction was to create the frames of the shops and install in them any kind of equipment, the heavier the better. And the frames are not comparable. A garage is one thing, even for 200 vehicles, but a modern steel-smelting shop with plasma furnaces is something else. The differences are essential, but you cannot discover them in the price lists. Creative work for finding modern technological decisions and introducing comprehensive mechanization and automation as well as methods of production organization--everything which in the future will determine the high potential of the object--is not taken into account and this means it is not paid for. Price lists for planning work published in 1967 were created according to analogues of the 1950's and the requirements for planning estimates have increased sharply since then. Additions and changes that came out in 1973, 1978 and 1983 are not keeping up with the growth of the requirements.

The cost of planning the reconstruction of a blast furnace in 1970 was 300,000 rubles (construction and installation work--10 million rubles). In 1980 for planning a furnace with the same volume they paid the planners 280,000 rubles. The increase in construction and installation costs (it was 15 million rubles) was "compensated for" by two coefficients that reduce prices of planning work. Yet the furnace was more complicated: high-temperature air heating, high

pressure of the gas at the top of the furnace, two casting yards, a system for automated control of blast furnace smelting, and so forth.

Several years ago in the institute they separated out from the division of water supply and sewerage a division for purification of industrial waste waters, whose purpose is apparent from its name. This division had to take responsibility for the plans for water supply for several plants, although this was not in its profile, so that somehow it could "live" financially. Planning water networks is very costly, but purification installations--this is ridiculous....

The time periods also depend on the cost of planning. Under these conditions the planners cannot always find and apply the best technical decisions.

The prices of planning work determine the level at which the search for technical decisions is carried out during planning, and this involves the interests of the entire national economy.

The aforementioned decree of the USSR Council of Ministers points out the need to solve this ongoing problem. The USSR Gosstroy with help from the ministries and departments has been instructed to develop and approve prices for planning work for construction in 1986. It is necessary for these prices not to depend on the cost of construction and installation work and to take into account deeper development of technological, economic, ecological and other decisions with comprehensive planning and variant development of the plans, and they must also envision payment for all of the work which is not being paid for at the present time. Technical assignments for equipment, planning of nonstandardized equipment, putting together startup complexes and so forth.

Without a Choice

As early as 1969 the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Improving Planning Estimate Work," permitted the ministries and departments to order the development of several variants of plans with complex technological processes or individual parts of them from various organizations in order to choose the best solution. Of course, not every plan will win in the competition. But is it not a hundred times worse when a shop is constructed according to a single plan and then the authors' mistakes start crawling out of all the cracks and it turns out that much was not taken into account, not thought through, and the changes eat up immense amounts of money. It also happens sometimes that it is impossible to correct these mistakes.

All of these losses can easily be avoided if one considers not one, but two or several variants of the plan. Competitions of sculptors or architects are an ordinary occurrence. And if the plan of one architect is "shelved" and if a more perfect one is accepted, one which is better in all respects, this is not extravagance, but the norm. Moreover, when the object is constructed it is already very difficult to essentially improve something. This means that the plan must be irreproachable, truly modern and effective. It is precisely in our work, probably, that the rule is justified to the greatest degree: measure seven times and cut once.

"Measuring seven times" is the way one must approach planning, for example, the planning of a shop for especially pure iron powder at the Sibelektrostal Plant in Krasnoyarsk. An experimental industrial object like this was created by our institute for the first time in the country, and the equipment was principally new. Why not organize its planning on a competitive basis and enlist not only metallurgists, but also specialists from other ministries? Today we ourselves can see the shortcomings in the plan, and many problems were not resolved in the best way. The development of several variants would have made it possible to avoid errors.

The Ministry of Ferrous Metallurgy does have experience in variant planning. During the 1970's the TEO (technical and economic substantiation) for the development of the Zlatoust Metallurgical Plant was entrusted to two institutes--the Kharkov Giprostal and the Chelyabinsk Gipromez. The variant of the latter turned out to be preferable: the developments went further and the technical solutions were original. The expediency of variant development has been confirmed in all instances which envision TEO, including by the Glavgosekspertiza of the USSR Gosstroy.

Creative competition of engineering collectives would force them to be more concerned about maximum utilization of scientific and technical achievements and about the reputation of their collective. But the ministry had not taken advantage of the right granted by this decree. Variant planning has not become widespread. One of the reasons is that the prices for planning work are still the same.

If the prices are wrong, perhaps a system of material incentives for planners would work? Possibly this would compensate for the shortcomings in the prices?

How Do Incentives Work?

The Chelyabinsk Gipromez in 1972 was the first in the branch to change over to the new system of planning and economic incentives. This increased the material motivation of the planners for high final results of their labor: excellent quality of the plan, reduced estimated construction cost, early assimilation of planned capacities, and reduction of the production cost of the products. During the first years it was possible to obtain the advantages envisioned by this system in spite of a number of shortcomings which were obvious from the very beginning. Labor productivity in the institute increased sharply as well. In 1974 at a seminar of planning and research organizations of the branch the experience of Gipromez was approved.

In 1977 the work under the system reached its "apogee"--new kinds of bonuses comprised 44 percent of the overall material incentive fund. Funds were created for social, cultural and domestic services and for the development of the institute, and everyone saw the connection between the results of their labor and the solutions to social and daily problems in the life of the collective. But subsequently, as other planning institutes changed over to the new system, the incentives began to grow weak. In various instances they began to "adjust" and "improve" them. In recent years the proportion of

income of funds obtained from clients has sharply decreased (in 1982 it amounted to only 13.5 percent of the overall material incentive fund). The system which was progressive in principle had ceased to work.

The situation which has arisen now does not motivate the clients and construction--installation organizations to reduce the cost of construction. Machine builders are interested in increasing the limit prices which are determined in the stage of planning for newly created equipment (for there is no strict policy for determining them) so that as a result of the difference between the prices and the production cost they can increase the amounts of their economic incentive funds. They refuse to develop new equipment if its price is different from the limit price. Naturally, the cost of the plan increases and its effectiveness on the whole decreases. The planners are not to blame for this, but they are deprived of their right to incentives.

Incentives for authors' supervision are poor. And yet the implementation of planning decisions, the quality, the cost and time periods for construction, and the savings on resources all depend on the interested work of the planner. But bonuses are given for authors' supervision only after the object has been put into operation. And if the objects are complicated as they are in our branch, this takes place once in 5 years.

The USSR Council of Ministers in a new decree instructed the USSR Gosplan, the USSR Gosstroy, the Ministry of Finance and the State Committee for Labor and Social Problems to refine the policy for forming economic incentive funds, and it instructed the State Committee for Labor and Social Problems and the USSR Gosstroy with the participation of the AUCCTU to revise and approve in the third quarter of 1985 standard provisions concerning bonuses for workers in planning organizations. The managers of planning organizations have been given the right to provide special increments to wages out of the savings on this fund.

Moreover, additional measures were improved for retaining personnel in planning and research organizations which, in particular, envisioned introducing for the workers a one-time remuneration for their length of service beginning in 1986.

There is no doubt that these measures will have a positive influence.

Purgatory

The epic called "Providing the Shop With Equipment" demands a great deal of effort and energy from the planners. This is a significant diversion from their basic work.

Let us give an example. When developing a plan for the reconstruction of the oxygen converter shop of the Chelyabinsk Metallurgical Combine our institute tried to include the most progressive solutions in it. In particular it envisioned installations for blowing argon on the liquid metal--this makes it possible to considerably improve the quality of the steel. They were manufactured by the Ural Heavy Machine-Building Plant. But only along with a machine for continuous smelting of blanks. And could they produce them

separately? "We cannot," was the answer given at this respected plant, "this is not within the profile of the enterprise." It is necessary to think about the profile. We turned to the Ministry of Heavy Machine Building. We received help: "The installations will be made by the Zhdanov Heavy Machine-Building Plant; go there." We went there. They refused. For 2 years a "blizzard of paper" stormed between the Chelyabinsk Gipromez, the two ministries and the two plants, and it was necessary to plan the installations as nonstandard equipment, which was also not easy to have manufactured. Out of frustration the Chelyabinsk Metallurgical Plant was forced to manufacture this installation itself. Was this its job? After all it is a metallurgical and not a machine-building plant....

This is an everyday episode from the practice of any comprehensive planning institute. Sometimes more time is spent on looking for plants to manufacture the equipment than on the development of the plan. The supply of equipment even for such an important object as the aforementioned shop for especially pure iron powder proceeded along the same scheme. During a year filled with correspondence they managed to "add on" only one kind of equipment from the extensive set of it. Everything else, as the Soyuzspetsstal VPO was informed, had to be manufactured by the Stariy Oskol Plant for Repair of Mining Equipment. As it turned out the Stariy Oskol Plant did not even have the technical capabilities of filling the order. In the end the problem of equipment for the shop under construction had to be solved by the Sibelektrostal Plant itself with the participation of...Gipromez.

It is not the machine-building institutes and enterprises, but frequently the planning institutes of ferrous metallurgy themselves that design the necessary equipment, including nonstandard equipment and also including equipment related to the mechanization of labor. A multitude of specialists are engaged in trying to place these orders, beginning with rank and file and ending with head specialists. An immense amount of time is spent on this, and the result is frequently close to zero.

Repair services of metallurgical plants which are loaded with the manufacture of nonstandardized equipment fail to fulfill assignments for the repair of existing equipment because of this, which leads to an increase in their breakdowns and down time and a reduction of the production of metal. And the quality of equipment manufactured by the repair services of metallurgical enterprises remains low.

The cost of equipment and its quality are a serious problem, particularly the weight and sizes. In terms of these parameters many kinds of domestic equipment are not as good as foreign equipment, which essentially reduces the effectiveness of our plans. An increase in the weight, say, of rolling equipment by a ton requires an additional thousand rubles for construction and installation. The energy-intensiveness also increases significantly.

We have already mentioned the mandate of the machine builders concerning limit prices. Machine builders frequently refuse to develop new equipment if the planners do not agree to the limit price they have established. Here is just one example. We ordered from the machine builders a set of equipment for electric welding of pipes with diameters of 1,420 millimeters (pressure--up to

100 atmospheres) for the Chelyabinsk Pipe-Rolling Plant. In 1980 we set the limit price for this set of equipment--24 million rubles. The manufacturers of the equipment did not agree to this price and set their own--41 million rubles. And a year later they "revised" it--65 million rubles. The calculation of the economic effectiveness done by specialists of the institute showed that the installation of this equipment would be economically inexpedient even taking into account the savings on metal in the gas industry.

The State Committee for Prices in conjunction with the machine-building ministries still have not provided for regular publication of reference lists of limit prices for the various groups of equipment.

Seven Plus a Spoonful

In recent years there have been more and more organizations that appear to be participating in capital construction but in fact draw the planners away from their work. The activity of these "participating" organizations is directed mainly toward control, inspection and expert evaluation. The plan uusually undergoes the expert evaluation of the ministry that has earmarked construction, and very frequently it ends up in the Glavgosekspertiza of the USSR Gosstroy for selective control.

After all this the approved plan can end up in the local office of the construction bank where the decisions made in the plan can be easily deemed incorrect. The letter and the spirit of the instructions concerning financing planning and research work are such that any violation (whether it is an actual one or just seems so to the bank inspector) can be cause for withholding the value of the entire plan from the planning organization. Stroybank institutions have a plan for the volume of work against which claims are made, it also takes on other commitments, and it keeps track of these sums. The higher office of the Stroybank is immediately notified of the result of the inspection with an indication of the volume of funds reclaimed, but when during the course of discussion and disputes the institute manages to prove the incorrectness of these sanctions, nobody is notified of this.

The banks have legitimate complaints and we accept them gratefully, but the harm from inspection engineering activity of the Stroybanks, in our opinion, exceeds the advantage this work produces.

Many difficulties are created by the existing policy of numerous (about 2 dozen coordinations of plans with interdepartmental commissions of the oblispolkoms and territorial institutes of the USSR Gosstroy. Frequently the workers of these agencies exceed their authority and make demands which are difficult or even impossible to meet. Thus the oblast sanitary and epidemiological station, when coordinating one of the objects of the Ashinskiy Metallurgical Plant, demanded that the institute envision...sewerage for the entire city.

The interdepartmental commission of the Chelyabinsk oblispolkom when considering the reconstruction of a shop of the Chelyabinsk Pipe-Rolling Plant demanded that they include in the reconstruction complex the construction of several urban facilities, including a building for the tuberculosis hospital

with 100 beds. The fire protection administration of the internal affairs administration of the oblispolkom would not agree to the construction of a boiler-cylinder shop for this same plant without the construction of a fire station for eight engines and a residential building for the firemen. They indicated a need for staff units for 56 firemen and the acquisition of various kinds of equipment for the firemen was to be included in the estimate. And all this without any kind of calculations or justifications.... But how was the head engineer of the plan for the Chelyabinsk Pipe-rolling Plant to justify capital investments for a hospital, a residential building, fire engines and other objects when the plan was considered by the departmental board of experts or the Glavgosekspertiza? One can understand the needs of the local authorities but one cannot agree with the practice of satisfying these needs by "attaching" them to every object.

It would be expedient, in our opinion, to deduct a certain proportion of the funds from each complex being constructed on a given territory into the centralized fund of the oblispolkom.

Take for example the activity of the territorial organization of the USSR Gosstroy. The Chelyabinsk Gipromez adjusted the planning assignments for the reconstruction and expansion of the Zlatoust Metallurgical Plant, adding to it the organization of the production of rolled metal with thermal mechanical processing in one of the existing shops. In its conclusion of 14 April 1983 the Chelyabinsk PromstroyNIIproyekt on three pages demanded that documents be submitted concerning the allocation of land for the plant (and the plant is 100 years old!), the removal of each of the engineering resources from the sources here, and they also demanded coordinating cooperative ties with the plant and so forth, issues which generally are not within the competence of the territorial organization of the USSR Gosstroy.

This cost a great deal in energy and nerves of the specialists of the Chelyabinsk Gipromez and plant representatives in order to prove the absurdity of the demands that were made. And then finally in a letter of 13 February 1984 the Chelyabinsk PromstroyNIIproyekt announced: "Having considered the responses submitted by the Chelyabinsk Gipromez to the remarks presented in conclusion No 3717, the institute considers it possible to withdraw its remarks and agrees...."

Almost a year was lost.

Methodological guidance of planning on the part of the USSR Gosstroy is based on the experience and practice of the operation of planning organizations of a construction profile. Methodological guidance of the work of planning institutes of a technical profile is either lacking or it is not done well. In our opinion it would be expedient to make the guidance of the process of technological planning the responsibility of the USSR State Committee for Science and Technology, leaving to the Gosstroy what is proper to its activity.

Such are the main limitations on getting ahead. Eliminating these would make it possible for the planning institutes which are called upon to be at the

source of technical progress to create enterprises of the future which do not keep up with, but get ahead of current technical equipment and technology.

What Should Be Done?

Let us sum up the results. We shall list the steps which it would be necessary to take.

1. Organization of the training of planning specialists of all engineering specialties in the VUZes (including in the training programs courses of lectures on planning, enlisting for teaching and preparation of programs and training aids the leading planning specialists, and conducting tree diploma practice of students in planning institutes).

2. Revising the prices for planning work and bringing them in line with the increased demands placed on the composition and content of planning estimates and the increased complexity of the objects of planning.

3. Introducing competitive planning.

4. Creating conditions for enlisting to work in planning organizations people who have a great deal of production experience and scholarly degrees. To do this it is necessary to increase the salaries of the leading planning specialists and make the pay for planners who have scholarly degrees comparable to those who have degrees in scientific research institutes and develop provisions concerning the policy of conferring scholarly degrees on planners for the complex of work.

5. Introducing regional coefficients to wages for planners in the Urals.

6. Establishing an honorary title of "honored planner of the republic."

7. Establishing the position of general planners of equipment who are completely responsible for the comprehensiveness, the functioning, the reliability, the quality and the technical level of all elements of equipment that are delivered, including electrical equipment, equipment for automated systems for technological processes, and so forth.

8. Creating in the Ministry of Heavy Machine Building capacities for producing all kinds of technological equipment for metallurgy, including nonstandard equipment, machines and mechanisms for mechanization of heavy and labor-intensive work.

9. Streamlining the policy for ordering equipment and reducing the volume of substantiating documentation. Regulating the duties and responsibility of Soyuzglavmetallurgkomplekt, planning organizations and client enterprises concerning ordering equipment.

10. Developing reference books of group limit prices for all kinds of complicated metallurgical equipment.

11. Revising the entire system of the influence of control agencies on the work of planning institutes. Prohibiting the intervention of expert organizations under main construction boards in the technological decisions related to energy supply, transportation, the sizes of the complexes and so forth. Limiting the activity of these organizations to expert evaluation of purely construction decisions.

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ROUND TABLE DISCUSSION FOCUSES ON LIGHT INDUSTRY

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 72-102

[Discussion in director's club recorded by L. A. Shcherbakova, and commentary prepared by V. F. Komarov and T. A. Silchenko, candidates of economic sciences, Institute of Economics and Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences (Novosibirsk): "Light Industry: Cardinal Decisions Are Needed"]

[Text] The communist party and the Soviet government devote a great deal of attention to more complete satisfaction of the growing demands of the Soviet people. The country is now drawing up a comprehensive program for the development of the production of consumer goods and the sphere of services. A great deal of significance is attached to the development of branches of the national economy which are directly related to solving this problem.

Our magazine has already addressed problems of light industry. It has written, for example, about the condition of the textile branch in the traditional center of it--the Pavlov trading center (see EKO, No 4, 1984). The problems that are solved by this branch are generally similar for all regions of the country. But in Siberia they are more crucial. This is explained by the shortage of labor force, the remoteness, and other factors. The condition of light industry enterprises was discussed at the regular meeting in the EKO director's club using the example of Novosibirsk.

Participating in the discussion were:

V. L. Avdeyev, first secretary of the Zayeltsovskiy CPSU Raykom (now deputy chairman of the Gorispolkom);

V. I. Alekhin, first secretary of the Tsentralnyy CPSU Raykom;

L. I. Ananina, director of the Rostorgodezhda base;

I. B. Bortsevich, director of the Felt Footwear Factory;

V. F. Brenno, former general director of the Sibir Leather Haberdashery Production Association;

V. A. Bulayev, chief of the industrial division of this CPSU gorkom (now chairman of the city planning commission);

N. G. Vetrova, head engineer of the Severyanka Sewing Production Association;

G. F. Demenkov, general director of the Detskaya Odezhda Sewing Production Association;

S. M. Zverev, general director of the Ob Leather Footwear Production Association, candidate of economic sciences;

M. A. Klabukov, secretary of the CPSU gorkom;

S. A. Koroleva, head engineer of the Novosibirsk House of Fashions;

V. F. Mamontov, director of the Pioner Factory;

K. I. Masyagutov, director of the Rosobuvtorg Association (now deputy chief of the Trade Administration of the Novosibirsk Oblispolkom;

V. I. Tuoka, head engineer of the Association imeni TsK Soyuza Shveynikov;

V. I. Shcherbakov, director of the Factory for Artistic Haberdashery.

The discussion was led by the editor in chief of EKO, Academician A. G. Aganbegyan.

When preparing the material we used the results of an investigation of sewing enterprises of the city which was conducted by a group of scientists of the Institute of Economics and Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences under the leadership of Candidate of Economic Sciences T. A. Silchenko.

The following group of questions were discussed at the meeting:

What must be done in order to radically improve product quality?

How does one make production serve the interests of the consumer?

How does one correctly arrange interrelations between trade and industry?

How does one radically (for instance, double) increase labor productivity at enterprises of light industry? What are the possibilities of scientific and technical progress here?

What is satisfactory and what is not satisfactory in the organizational structure of the branch? How does one take advantage of organizational and economic reserves for increasing effectiveness in light industry?

How successfully are social problems being solved at the enterprises? What problems are the most crucial here, and what should be done?

What can be done even now within the framework of the city or oblast without waiting for a decision at a higher level?

A. G. Aganbegyan: You know, comrades, about the large amount of attention which the party and government devote to raising the standard of living of the Soviet people. While in 1982 the real incomes of the population increased by only 0.5 percent, in 1983 they increased by 2 percent and in 1984--by 3 percent. The rates of commodity turnover have doubled: in 1983--2.7, and in 1984--5.4 percent. All this was achieved to a considerable degree as a result of the contribution of light industry enterprises along with agriculture, the food industry and other branches of the national economy.

At the same time a number of complicated problems have accumulated in light industry. Therefore we are working out the prospects for the development of the branch and taking measures for accelerating the introduction of the achievements of scientific and technical progress, redistributing capital investments and increasing labor productivity. In Belorussia, the Ukraine and a number of other republics, within the framework of the large-scale economic experiment steps have been taken to improve the economic mechanism and especially ties with trade. Much is improving. But so far we have not observed any radical changes. Therefore today we should like to discuss in special detail what, in the opinion of those present, is impeding the development of the branch.

M. A. Klabukov: There are 13 light industry enterprises in our city. In 1983 they produced 340 million rubles' worth of products. The enterprises have sufficient production capacities which enable them to produce almost 200 kinds of goods.

The Ob Leather Footwear Association, the Sibir Leather Haberdashery Association and the Sibir Knitwear Association have been operating stably for many years. Many know about the interesting experience of the Ob Association in economizing on raw and processes materials. This enterprise is one of the initiators of the adoption of socialist commitments for above-plan increase in labor productivity and reduction of production costs. The Sibir Knitwear Association was awarded the Challenge Prize of the CPSU City Committee, "The Crystal Vase" for high indicators and constant creative search in the area of quality and updating of assortment in 1982. These are only individual successes.

On the whole the situation in the city's light industry does not meet modern requirements and as compared to 1975 the growth rates of the overall volume of output were in 1980--120.6 percent, 1981--119.9 percent and in 1982--115.1 percent. In 1983 they produced 42 million units of sewn items fewer than in 1980. This tendency continues. The number of people working in sewing

enterprises decreased during this period by 1,715. As a result, the coefficient of the utilization of the capacities of equipment also decreased.

We understand that the sewing workers have sustained large losses because of the unfavorable market conditions and have traded in unmarketable products. Trying to figure out the reasons for this situation, we invited the commission from the Central Scientific Research Institute of the Sewing Industry. One cannot but agree with the remarks concerning the organization of production and labor which it made.

They amount to the following:

nowhere except in the Association imeni TsK Soyuza Shveynikov have they organized the section flows properly; almost everywhere the cut pieces are put into the flow line as single units, and not in batches;

removable flow lines are a thing of the past in light industry, but they are operating in our large associations Detskaya Odezhda and Sorevnovaniye.

We need good engineering preparation of the work positions. It is necessary to take advantage of the experience of leading enterprises in certification of the work positions. But serious work in this area can be seen only in the Association imeni TsK Soyuza Shvenynikov, and so far the output per one worker in the oblast at sewing enterprises is 13 percent lower than the branch output, while in 1980 it was only 6.6 percent lower.

Today the main requirement placed on the work of light industry enterprises is to keep in step with fashion. How do we do this more quickly and better--these are the questions which should be discussed today.

Quality, Quality...and Again Quality!

EKO: Regardless of what we discuss today we shall always be returning to questions of product quality. They are complicated but they are the most important ones for the branch. Let us begin our discussion with these.

S. M. Zverev: In spite of the flattering words which have been spoken about our association we must say that we are not satisfied either with the rates of development we have achieved or with the quality of our products. We have success with certain kinds of footwear, but on the whole we cannot say that it is competitive with foreign footwear.

Today we have concentrated under "one roof" almost all of the technological cycle--from tanning the leather to producing the shoes. We have specialized our own enterprises. In Tomsk we make footwear from textiles, in Biysk--children's shoes, in Barnaul--fashion footwear, and in Gorno-Altaysk--Kersey Footwear. The structure of the association is quite modern.

What then is standing in the way? Like many other Siberian enterprises, we are assigned the very worst suppliers of raw materials. Thus during the past 4 years the Krasnoyarsk Plant for rubber items has not produced any light rubber at all, even brown rubber. All of the rubber that comes to us produces

a precipitate of about 5 percent. It is necessary to "age" it first. There is nothing to be done: the suppliers are appointed out of considerations of territorial proximity. But then they should restructure their work. A consumer in Siberia should not suffer because the Chernogorsk Combine is operating poorly.

Yet we have our own chrome leather plant. Moreover, the meat combine is a 2-3-minute walk from it. But regardless how much we ask the USSR and RSFSR Gosplans and the republic council of ministers to ship raw material to us--it is all in vain. It goes to Kursk, Leningrad and Ashtashkov. And we obtain 70 percent of our raw material from the oblast consumer's union. It is known to be no higher than the fourth grade, and sometimes it is suitable only for liming.

We have been receiving a white dye for more than 3 years now. And without this we cannot make women's summer shoes. This dye is not "transshipped" beyond the Ural mountain range. Somewhere 100,000 soles allotted to our association are waiting to cross over.... Light industry enterprises of various regions of the country, in my opinion, have been placed in unequal positions with respect to the provision of raw material. Moreover, especially fashionable items, as a rule, require the use of imported raw material, soles and accessories. Our industry, especially the chemical industry, does not take the needs of light industry into account.

V. F. Brenno: The situation is similar in glove production. We have long been suggesting that we change over to the production of summer gloves in the summer time and winter gloves in the winter. But 90 percent of the chrome leather we receive is black. You cannot make elegant gloves from it. Yet if you do not purchase black leather you do not purchase any at all. The country's glove industry on the whole receives 30 percent light raw material, but they give us only 10 percent.

S. A. Koroleva: "It is better to have less, but of better quality...." Perhaps this principle should be the main one when planning the output of consumer goods?

It is impossible to create a good fashion without modern batching materials. In the house of the best fashions in Moscow there are wonderful models of clothing. We cannot create anything similar since we receive lightweight glued materials, fillers, and glued foundations, on which the quality of the items depend directly.

G. S. Demenkov: Here you are speaking about the principle of "better less but of better quality." Unfortunately, up to this point there is no fundamental decision which would help to bring the city's sewing industry enterprises out of the extremely difficult situation in which they nave not fulfilled the plan since 1980. But the solution, in my opinion, lies in implementing this principle, in improving the quality of the items.

The main reason for the difficulties, in my opinion, is unrealistic planning and the lack of coordination in the plans of the engineering support, labor expenditures and the number of workers. The system of planning from below is

not recognized. Within a month after the plans are submitted to the ministry they are returned and all of the indicators in them are increased by 10-15 percent. The quality of the items depends on the quality of the plans. Frequently we go for "pieces" to the detriment of quality. But the quantitative indicator remains in the plans.

With respect to raw material the situation is similar to the one discussed by S. M. Zverev. We receive only 3-4 percent of the necessary volume of fabrics from the existing centers. We have to sew dresses for little girls and grandmothers from the same material. And yet we now have 400,000 rubles' worth of products lying in our warehouses.

EKO: What do you suggest?

G. S. Demenkov: Eliminate the plan in "pieces." The house of fashions produces good results for us, and in production we achieve a reduction in labor expenditures in order to fulfill the plan. By cutting short the complexity we cut down on quality, and along with this--the demand as well.

Response: But "pieces" are planned so that Tanya or Vanya will not be left without a coat....

G. S. Demenkov: But these planned coats lie around for years! The enterprise should be given a more flexible system of maneuvering prices, interrelations with trade, and the possibility of solving more problems locally! Now all enterprises in the city's sewing industry have lost their credit because of above-normative supplies of raw and processed materials which were brought in for an unjustifiably inflated production program. In 1983 we paid 337,000 rubles as interest on loans. As a result the plan for profit was not fulfilled and moreover the enterprises were given an unsubstantiated plan for product sales. We did not fulfill it either and because of this we had to pay a large fine to trade. What does one do with above-normative supplies? We could not use them and we were forbidden to sell them. The enterprises should probably be given the right to maneuver the raw material which they have not utilized.

F. M. Zverev: Indeed, the modern condition of planning leads to overstocking in light industry. We go to a trade fair knowing for sure who will be given footwear and in what amount. It is even known who needs our footwear. In the USSR we now produce 3.3 pair of shoes per person per year. But do they need this many? Knowing that there is an overproduction of individual kinds of footwear, we still make it because we are given orders from above. These are the consequences of rigid centralization in planning.

During the past 2-3 years there has been a sharp increase in prices for batching items: a 2-fold increase for thread, fasteners and thick woolen cloth; dyes have become 6 times more expensive. But the price of footwear remains the same with the exception of products from plants which use chrome and stiff leathers. The profit plan has not changed either.

EKO: In your opinion would it not be possible to abolish centralized plans in light industry, as G. S. Demenkov said, and orient production to the demands of trade which take into account the demands of the population?

S. M. Zverev: I think that if this were to happen we would work a lot better. Here is one example. We produce boots made of polyurethane. The consumers like them. But the supplies of polyurethane are far from enough and therefore they plan for us to produce boots for which there is absolutely no demand. We ask the higher organizations to restrain at least from planning the numbers of them which they do, but they respond to us: What if tomorrow there is suddenly a demand for these? Or there is this example: when high boots with liming sold well they planned for us the output of only short boots with warm lining. If as a manager I had the opportunity to form the plan from the orders from trade we would rearrange the assortment.

EKO: And what if we were to organize a firm which would produce and sell the products?

S. M. Severev: Rosglavobuv of the USSR Ministry of Light Industry suggested that as early as 16-17 years ago. But this suggestion found no support in the Trade Ministry. Disagreements with trade are constantly arising. The only thing we have managed to so far is to open a firm store. But a maximum of 1 percent of the footwear produced comes here. Following the experience of the Batumi Leather Footwear Combine, we should create industrial trade complexes.

L. I. Ananina: Wholesale bases are the link that joins trade and industry. Our task and the task of light industry are the same--making sure that the products that are produced are sold and that the consumer is satisfied with them. But so far, unfortunately, this is not happening. What is standing in the way? First of all, the poor quality of the products that are produced. And so far I do not see any progress. We have already discussed here that in 1984 in Novosibirsk there was a commission headed by the director of the Central Scientific Research Institute of the Sewing Industry. But what radical changes did it suggest? None. And in those distant times when there was a sewing trust in Novosibirsk many questions regarding replacement of the assortment, for example, were solved on the spot. Now we are dealing with plans that are drawn up in Moscow. The wholesalers have certain plans while light industry enterprises have others. They struggle for the sales plan while we struggle for the plan for deliveries in the coordinated assortment, which is being fulfilled by only 80 percent. And the sewing industry enterprises of the city have been in an extremely difficult situation for many years, as have we wholesale workers. In 1984 alone industry failed to give out planning assignments amounting to 23 million rubles. This sum was "hanging in the air." But these were not revised in our plan. Hence the difficulty of our interrelations. How can one work with empty figures?! And there is no room left here for the interests of the consumers. Because of the unrealistic plans it has been difficult for us to work and, of course, the same is true for trade. In 1983 all enterprises of the city's sewing industry were forced to change the production programs from two to six times. During all of 1984 the annual production program was being formulated in the Association imeni TsK Soyuza Shveynikov. But this enterprise is in a threatening position because of the overstocking of unmarketable products.

And Zapsibshveyprom, which is located nearby, in Kemerovo Oblast, is not taking any measures.

Response: The last time the minister visited us was 25 years ago....

Are Felt Boots Needed in Siberia or Something About the Assortment

N. G. Vetrova: Sometimes the opinion is expressed that planning in volume indicators--"pieces"--makes it possible to plan the required quantity of items. But are the products that are planned the ones for which there is a demand? The random nature of the assortment, particularly in the sewing industry, is a true problem. Thus for the past 2 years we have been experiencing great difficulties in selling men's silk jackets. Cotton jackets for boys have lived through difficult times and there is no longer a demand for them. Again a problem. Where can they be sold, the plan has not been abolished, the fabric has been purchased, but trade rejects them.... In the branch there are institutes which engage in studying the demand, for example, the VIALegprom. And the random nature of the assortment has not been eliminated.

S. A. Koroleva: Indeed, today there are no predictions about who will need what kind of clothing and how much? N. G. Vetrova discussed the fact that the VIALegprom engages especially in these problems. There is also the All-Union Scientific Research Institute for Studying the Popular Demand for Consumer Goods and the Market Conditions for Trade of the USSR Ministry of Trade, whose activity we in no way experience in practice....

S. M. Zverev: We are trying to react to the orders from trade, but this is not always possible. There are certain problems which we cannot solve by ourselves. The structure of the consumption of footwear is such that in February-March and December-January it is best for us not to sell seasonal products but leave them in the warehouse for the time being. But in order to do this we need additional warehouses amounting to 1,500-2,000 square meters. Sometimes products are not bought in June and by July they are unmarketable, unseasonable, and yet in August-September people are standing in line for them. But if the seasonal footwear were stored for a month or two in the warehouse of the association the sales plan would not be fulfilled. On the other hand, trade does not wish to accept unseasonable footwear. If, for example, in the TsUM in the height of summer a batch of winter boots came in, it is always possible to find defects and return them to the enterprise.

As the USSR deputy trade minister admits (KOMMERCHESKIY VESTNIK, No 2, 1984--ed.), wholesale bases are practically not being developed. As of today there are several times more warehouse facilities in retail trade. This also leads to disproportions in the output of seasonal goods.

V. F. Brenno: We produce school backpacks. During the season they are in great demand, and before this we take them throughout the entire country. "Ob" ships footwear, and we ship backpacks. The year comes to an end and all of the backpacks are sold out. But before the beginning of classes there is a great deal of confusion about them, in spite of the fact that they receive the highest rating for quality--40 points.

N. G. Vetrova: The republic trade fairs should play a more significant role in determining the assortment and improving the quality of products. So far they are not fulfilling their purpose. Of course we prepare for them and go to the trade fairs in entire brigades--engineers, artists, designers and representatives of the house of fashions. But the trade fairs themselves are mainly for show. We do not select, but we are, as it were, selected. If there is still some silk or wool which we like we can select it (the textile workers are overstocked with these fabrics), but there are no other fabrics. At the trade fair they show interesting fabrics which would go excellently with our fashions, but we cannot obtain them. Everything is determined beforehand, and the manager of the enterprise most frequently signs an announcement mechanically, without the possibility of changing the situation.

V. I. Shcherbakov: According to the established practice the interrepublic textile fair for purchasing fabrics takes place in July. Two weeks later is the interrepublic fair for selling textile haberdashery items. During this time the factory has the opportunity to obtain raw material, select new items and establish the prices for them. As a rule, textile enterprises deliver the new fabrics no earlier than in the first quarter of the following year. I think that the time period between the trade fairs should be no less than 3 months, and the enterprises that supply the raw material should send the new fabrics to the factory within a week after they have been purchased at the trade fair.

N. G. Vetrova: There are individual items in the assortment which the ministry assigns to us arbitrarily, for example, school dresses and men's silk jackets. For 1984 we received a plan to reduce 1.7 million jackets, but the base will take only 780,000 of them. So we have a rivalry. We cannot replace them or refuse to sew them--we have to fulfill the plan, on which the well-being of the collective depends. Managers of the Rostorgodezhda base agreed to take the items of the controlled assortment if in return we send them the very fashionable items. But where do we get fabric for them? So we go around in a circle.

EKO: Natalya Gavrilovna, your suggestions, please.

N. G. Vetrova: Establish the plan locally, being oriented toward the demands of trade. Otherwise it is absurd: Our general client is the Rostorgodezhda base, and the plan is filled out without taking into account its demands. The trade ministry sells us fabrics, but it rejects the clothing that is sewn from them.

G. F. Demenkov: There are many unsolved problems in our relations with trade. For example, it can reject an item after a month, but we cannot reject the raw material until after 70 days. And so it lies in our warehouses, creating above-normative supplies....

EKO: Yes, this is a long and confusing chain: the Ministry of the Textile Industry produces fabrics and sells them to the Ministry of Trade, it sells them to the Ministry of Light Industry, and the Ministry of Light Industry

produces items from them and again sells them to the Ministry of Trade. It would be a good idea to regulate these ties.

V. I. Shcherbakov: This is what bothers me. We send our products to many addresses. It takes from 10 to 30 days to come from the clients. This large amount of time leads to a situation where frequently the sales plan is not fulfilled. Yet we carry out our deliveries according to agreements concluded with Roskulttorg, Koopposyltorg and Rosgalantereya. I think that only the organization with the stock should pay for the accounts.

L. I. Ananina: A reduction of the production volumes, which was discussed here, leads to a situation where the enterprises also reduce the assortment. We are curtailing the production of men's cotton jackets, school uniforms for boys, raincoats and jackets made of mixed fabrics, coats made of artificial fur, and we are not sewing women's cotton pajamas and nightgowns.... For 50 years we people of Novosibirsk have been wearing coats from the Association imeni TsK Soyuza Shveynikov--with gloomy colors, heavy and unfashionable. Is it not time to update the assortment in a planned way? Our enterprises are capable of producing good things and they are doing this, but in small volumes, because of the shortage of raw material. I do not know why the managers of enterprises are not reminded of an obvious fact: containers with material which they did not order frequently come to them and they are forced to accept it.

EKO: Can sewing enterprises of the city send their products to other oblasts, bypassing your base?

All products which they produce are funded, that is, they must come to our base. As an exception we have agreed to let the Association imeni TsK Soyuza Shveynikov deliver 10 million rubles' worth of products to other oblasts--because of the enterprise's difficult financial situation and the lack of a demand for its products.

Response: It turns out that any sewing enterprise is directly dependent on the base.

L. I. Ananina: At the beginning of the year there was a difficult situation with children's winter coats. They were not purchased. If it had been possible to solve this problem locally we would have done it along with Comrade Demenkov. But we do not have this right. And difficulties with the assortment have become almost predictable. In 1983 we were forced to come to a new agreement about the assortment for 10 million rubles' worth of products in order to bring the sewing enterprises out of their difficult situation: they received substandard raw material which they had not ordered. In general we can solve many problems with representatives of industrial enterprises here, locally. I think that it is necessary to exclude at least the assortment from the plans for light industry in the near future. Every summer we are forced to take winter coats into our warehouses and store them for more than a half-year. Since in 18 years we have not had a single warehouse built and the commodity turnover has increased 5-fold during this time, one can imagine what the conditions are like there. And one must also recall the shortage of good packaging. Even expensive men's suits come in without

packaging and are stored in bulk. We cannot refuse to accept the products either: the enterprises have a production program which is arranged without taking the season into account.

Response: The plan, quality and assortment contradict one another. Who knows what will happen in a year and how the fashion will change? Abroad they sell out unseasonable items with a considerable markdown.

L. I. Ananina: Of course if we were to promptly mark down coats that were not in season there would be no overstocking. But they should be marked down at the right time.

K. I. Masyagutov: Each year the assortment of footwear that is produced decreases. The house of fashions of the Ob Association annually develops 250-300 models. Only 117-120 appear at the trade fair. Yet the footwear produced by the association, especially children's, is in demand not only in Siberia. While we receive 52 million rubles' worth of footwear, we sell 14-15 million rubles' worth to other areas--from the Urals to Sakhalin. But at the same time the association's share of our commodity turnover is only 30 percent. From Novosibirsk we send footwear, say, to Krasnodar and we receive similar footwear from the Caucasus and the Ukraine.

I. B. Bortsevich: Our enterprise's situation is probably unique. Even 4 years ago it was announced that our factory would be closed. And yet we provide felt boots for an entire city and oblast of a million and a half. Since the prospects are uncertain the workers are leaving...and there is no way to solve the problem of whether or not our enterprise should continue to exist, and if it does--where? Perhaps Siberians no longer need these felt shoes?

V. I. Tuoka: Our Association imeni TsK Soyuza Shveynikov has the most unmarketable assortment of all the light industry enterprises in the oblast. The market has been saturated with our coats since 1980. Many imported items have appeared, with which we cannot compete because of the poor fabrics which are uninteresting in form but have costly fur collars, and the lack of lightweight materials. The house of fashions is offering us interesting models, but we have nothing to sew them from.... The raw material suits neither us nor the consumer. The enterprise is languishing. During this time we have lost 20 percent of our personnel. Each year the collective is renewed by 50 percent. Second-generation flow lines have been introduced, but groups from the GPTU operate on them. How can we fight for quality under such conditions? The situation is exacerbated by the fact that we are losing specialists. This is especially painful to the enterprise.

But Still "Personnel Decide Everything!"

S. M. Zverev: We have a more stable position, but we are still experiencing an outflow of personnel. Nearby are enterprises of other branches where the salaries for engineering and technical personnel are higher. I should like to discuss social and domestic conditions. We have done a good deal, but we cannot do everything alone. For example, the construction of preventive medicine facility. According to the norms for every thousand workers there

should be 15 places in the dispensary. There are relatively few workers at light industry enterprises. Each one individually will not receive permission for construction from the ministry. I think it is necessary to consider the entire complex of enterprises of the branch in the oblast, making one of them the title holder. This pertains also to sport facilities, recreation bases, palaces of culture and so forth.

EKO: But why not have branch republic industrial associations take care of these problems?

G. S. Demenkov: Our republic production association is based in Kemerovo and pays no attention to the Novosibirsk enterprises. Losses of personnel (our association, for example, lost 24 percent of its workers during 1980-1983) is typical of all light industry enterprises in the oblast. The reason for this is clear. The failure to fulfill plans is directly reflected in the amount of the funds for material incentives and social, cultural and domestic services. Additionally, work at light industry enterprises is not prestigious. For example, in the city of Berdsk in Novosibirsk Oblast there is housing, a dormitory and a kindergarten. But the labor turnover is higher than at the head enterprise. This is not a matter of social conditions. Located next door is the Bertsk Radio Plant. The wages are higher there, and the people are going there. It is necessary to artificially raise wages in order to retain personnel. This is one important aspect of the problem. Only 15 percent of the graduates of the GPTU remain to work at the enterprise.

N. G. Vetrova: About 20 percent of the graduates remain to work at our enterprise.

Response: Now light industry enterprises of the city are essentially a point of departure: A young person comes from the country, works there a while and becomes familiar with the city--and then he goes to a plant in another branch: the labor-intensiveness is lower and working conditions and earnings are better.

S. A. Koroleva: We are experiencing a shortage not only of workers, but also of skilled specialists with higher educations--designers, modelers, and engineering and technical personnel. It is no wonder that the sewing enterprises of the city are experiencing difficulties in selecting management personnel and clothing designers. It would probably be possible to train such specialists in the Novosibirsk Branch of the Technological Institute for Light Industry.

V. I. Alekhin: Among the enterprises that determine the "appearance" of the city's central region are the city of Sorevnovniye Sewing Association, the Association imeni TsK Soyuz Shveynikov and the Sibir Knitwear Association.

In keeping with the plans for economic and social development a good deal has been done in the sewing and knitwear associations of the region to improve the conditions for the labor and life of the workers: new production and administration--domestic buildings, dormitories, children's institutions and dining rooms have been constructed. The enterprises have doctors' offices and consumer service enterprises. In 1984 labor turnover decreased somewhat as

did losses of working time. This year the enterprises have begun to certify work positions, which will undoubtedly produce an appreciable effect. But the personnel problem remains just as crucial. During 4 years of the five-year plan the number of workers at the associations Sorevnovniye and imeni TsK Soyuza Shveynikov alone have decreased by one-fourth. In spite of all the measures that have been taken in the sewing associations there is still a high level of turnover--up to 24-28 percent. The majority of workers are youth.

The occupational orientation of students in city schools is not yet producing the desired influx of graduates of sewing associations. Therefore the main personnel school for young workers is the GPTU. But these personnel too, as has already been said, are unstable. We conducted an investigation among people who had left the Association imeni TsK Soyuza Shveynikov. The main reasons in 1984 were these: monotonous, tiring work--8 percent; dissatisfaction with working conditions--5.5 percent; the lack of dwelling space--16.5 percent; distance of work from place of residence--11 percent; transfer to the work place of the husband--15.5 percent; departure from city--23.5 percent; and education of children--20 percent.

It is obvious that the problem of retaining personnel at these enterprises has been directly related to housing since the main influx into the GPTU are graduates of eighth and 10th grades from regions in the oblast. Thus in 1984 they comprised 180 of the 270 people who entered the GPTU of the Association imeni TsK Soyuza Shveynikov. The majority of them leave within 3-4 years and also leave the city. Only 16 percent of the GPTU graduates of 1981 are now working in the association, and 30 percent of the 1982 graduates. It would be possible to solve this problem to a certain degree by providing a dormitory for young families--well-arranged residential buildings with one-room and two room apartments that belong to the associations. In this connection we should like to recall the publication in EKO of the selection entitled "How the Young Worker Lives."[1] It named with absolute accuracy the main "sore points." I support the suggestion concerning cooperation of efforts of light industry enterprises, including for constructing dormitories. Then a more stable collective would be formed in the associations. And this directly influences the increase in the skills of workers and engineering and technical personnel and, consequently, also labor productivity and the quality of the goods that are produced. Perhaps I have presented this path to increasing the effectiveness of production somewhat simplistically, but from the example of enterprises of other branches this "chain" can be traced fairly clearly. Yet the construction of a house of culture has been put off for more than 1 decade, and it could become the main one for the enterprises of the Ministry of Light Industry which were located in the city. And this is an issue which is far from least in importance for youthful collectives.

Light industry enterprises are clearly losing with respect to the wage level as compared to enterprises of other branches which also employ mainly women (radio industry, instrument building and so forth). Under the conditions of a large industrial center, of which Novosibirsk is an example, for this reason sewing and knitwear associations become less attractive to school graduates. Therefore our associations have opened up their own branches or shops in the rayon centers of the oblast. But this measure was forced: at the head enterprise the equipment operates on one shift and the opening of branches in

the peripheral areas requires increased administrative-management and service personnel, and transportation expenditures also increase. If the annual output from one worker on an average for the Sibir Knitwear Association is 15,500 rubles, for the main workers of the head enterprise it is twice this much. Having worked at sewing enterprises of the city in 1984, the commission of the USSR Ministry of Light Industry drew the conclusion that the organization of labor and productivity in the association imeni TsK Soyuza Shveynikov is higher than the average for the branch. But in the same reference it is noted that without counting the rayon wage coefficient the wages are 8 percent lower in this association than the average for the branch. Such paradoxes are not gratifying.

Scientific and Technical Progress: Facing Toward the Branch or Away From It

S. N. Zverev: If one were to compare the indicators of the operation of our association during the 9th, 10th, and 11th five-year plans, the process is clear: labor productivity has increased by 40 percent, and the output of fashion footwear has doubled. But while under the 9th Five-Year Plan we employed 4,000 people, under the 10th we employed 3,600 and under the 11th 3,350. That is the number of personnel, as in other enterprises of the branch in Novosibirsk, is declining. One cannot say that this is being compensated for by the productive capabilities of the new equipment. We do not have second-generation flow lines or sets of equipment of the Desma type on which one worker can manufacture 300 pair of boots during a shift (at our enterprise a worker manufactures up to 12 pair). The attempt to arrange interbranch ties with machine-building enterprises of the city was not crowned with success.

N. G. Vetrova: We have received automated lines of the second generation from domestic production, but we have gained little from this since the equipment is not reliable and frequently breaks down. And we were not allotted any semi-automated machines for producing collars, button holes and buttons. But at the same time, as experience shows, we cannot be oriented exclusively toward the purchase of imported technological equipment: difficulties arise with the spare parts.

G. S. Demenkov: Traditionally "painful" issues for the branch are mechanization of auxiliary processes and the production or organizational fittings. So far the branch is not dealing with these problems. And the enterprises themselves are not capable of solving them. I think we need a kind of "intellectual patronage" of machine-building enterprises over light industry enterprises so as to rectify the situation.

V. S. Brenno: The majority of light industry enterprises in the oblast are now operating on one shift because of a shortage of people, and the capacities are utilized by 50-65 percent. For example, our flow lines for producing knapsacks and purses are staffed by only one-third. It was necessary to introduce additional payments for operating more than one machine tool as is the case in weaving production. Now every worker operates three to four machine tools. But a good deal of time is lost in transition. One comes to the conclusion that is necessary to create a complex of universal machines which would group the unit of operations. This could be a three-stage press or a universal machine tool. We are working in this direction but it is

extremely difficult for a small enterprise to solve these problems and therefore I fully agree with G. S. Demenkov regarding the joining of forces of enterprises of light industry and other branches within the city.

The quality factor is invested in an item when it is being designed. I cannot say that the Novosibirsk House of Fashions does not do enough work in this stage. But the relative backwardness of our textile base has an effect. From the magazines we learn that there are automated processes for developing forms of items, reproducing them and placing fabrics on the form that has been created in order to save on raw and processed materials. This kind of technology is being used successfully in Finland, Hungary and in our country, for example, in the Gorkiy House of Fashions. And the reduction of the time periods for development which is achieved this way affects the updating of the products.

Of course we are not sitting with our hands folded either. We are reducing the time periods for designing fashions, unifying the components and parts, introducing the same kind of technological sequence at sewing enterprises, and we are providing for author's supervision. But still there are many reserves.

Are "External Ties" Arranged?

S. M. Zverev: We have close ties with the republic industrial association but they are not very effective. It cannot solve the majority of our problems, especially those concerning the prospects for development. The Ob Association was organized in 1976 and at that time they "added" to us the Gorno-Altaysk Footwear Factory, an enterprise which was always operating at a loss and with which we had no cooperative ties. It is probably time to revise the structure of the association, but who will do this? As far as I know the ministry has no strategy for the development of enterprises that are chronically operating at a loss.

V. F. Mamontov: Our factory, Pioner, produces children's toys. There is a demand for the products. The only toy institute in the world has been created in our country, in Zagorsk. But neither my colleagues nor I feel its influence in determining the prospects for the development of enterprises. It is necessary to have a coordination center in the oblast which would handle problems of light industry. In particular we can extensively utilize wastes from the sewing industry. The appropriate order for the ministry exists, but it is not being carried out.

S. M. Zverev: Now about our interrelations with material and technical supply agencies. The normative for circulating capital in the branch has not been revised for more than 10 years. Therefore we are extremely dependent on credit. Additionally, the so-called "salvo" deliveries (large series) are widespread, especially for imported batching items. As a result of this the warehouses at the enterprise are chock full but there is no money. For the past 2 years we have regularly had our credit taken away in March, and it has been restored in June-July. Instead of 40 days we have been forced to hold on to material values for at least 100 days. During the summer we produce less warm fur footwear and therefore the raw material again piles up in the warehouse. The raw material which we need we cannot buy, and that which we do

not need we cannot sell. As a result we pay fines and lose vitally important money which could go for the development of the enterprise. I am not even speaking about the fact that material and technical supply agencies let us down in many ways. At the beginning of 1984 we looked all over Siberia for monochloramine, and at the end of 1984--methyl.

V. F. Brenno: About 10 years ago a decision was made to expand the functions of the material and technical supply agencies. In connection with this the enterprises transferred to them personnel and the wage fund for the people in charge of the warehouses and also warehouse workers. Now we have essentially returned to the old way and gone over to direct ties since there is no guarantee that these agencies will deliver our raw material to us promptly.

Even worse is that, having received even a carload of raw material, they immediately try to push it off on us, delivering the ultimatum: take it or we will send it to another enterprise. But we have no warehouses. Now we get a hold of practically all our own raw material. And in order not to interrupt the rhythmic operation of the enterprise we are forced to hold on to a 2-years' supply of values. Because of this in 1983 alone we paid the bank more than 300,000 rubles in interest on credit. The enterprise lost 65,000 rubles which could have been obtained from the material incentive for efficient utilization of raw and processed materials.

V. L. Avdeyev: When the sovnarkhozes were eliminated territorial administrations of such branches of light and the food industry were abolished. This was a mistake, in my opinion. It is difficult to plan everything from above in such a large country as ours, and perhaps it is even impossible. It would probably be worthwhile to return to territory administration of light industry while retaining committees which solve problems for the country as a whole.

It is necessary to create a self-regulating system of interrelations--from the producer to the consumer. And everything should serve the interests of consumers, regardless of who represents them--the wholesale or the retail sector. I think that it would be worthwhile to create wholesale bases which would be under the jurisdiction of local soviets or under dual jurisdiction. If they were responsible for satisfying the demand for particular products in the oblast they would begin to energetically search for possibilities of doing this. And if the workers of the bases were economically dependent on the degree of satisfaction of the demands of the consumers, on their interest in making sure that products of local enterprises were purchased, they would begin to work in this direction more energetically and with more initiative.

Internal Reserves Are Far From Exhausted

V. A. Bulayev: We understand that a discussion in the "directors' club" does not eliminate the problems. But these problems are named here and ways of solving them are earmarked. We can do something even now. This pertains first and foremost to cooperation of light industry enterprises in the construction of social, cultural and domestic facilities. We shall study the problem of machine building capacities for light industry. But our work

experience and today's discussion have shown that far from all internal reserves of light industry enterprises have been exhausted.

V. A. Avdeyev: The manager of the enterprise plays a large role in the utilization of these reserves. It is necessary to do painstaking work for educating personnel, relying on public organizations. One must take note of talented people and find work that is suitable for all workers. The Ob Leather Footwear Association has been operating more and more stably during past years. And yet up until 1974-1975 it was in a most difficult situation. The reasons were the weak leadership of the enterprise and the lack of attention from the main board which is located in Moscow. After the creation of Roskozhobuvprom, material resources began to be distributed more uniformly. And after the top manager was replaced in the association there was greater initiative and a desire to introduce new forms and methods of management. We are now introducing the collective contract which will help to solve a whole number of problems: to increase the collective's interest in the results of labor, to fulfill planning assignments with fewer personnel, and so forth.[2] Including engineering and technical personnel in the brigades increases their material and moral incentives. So there really are internal reserves, and they must be utilized.

A. G. Aganbegyan: We have had an interesting and pointed discussion. The importance of the problems that have been raised is understood today as never before. This is precisely why we are now developing a special comprehensive program for the production of consumer goods. It seems to me that the search for ways of resolving the problems that are arising should proceed in the direction of strict subordination of production to the consumer. Isolating production from the consumer and a lack of dependency of the results of the work of light industry enterprises on how the need is actually satisfied for one item or another should be eliminated.

Orientation toward the interests of the consumer is envisioned by the large-scale economic experiment in expanding the economic independence of enterprises and strengthening their responsibility for the results of their work, which is now taking place in the country. It seems to me that it is precisely on the path of expanding the rights of enterprises in the area of economic activity and placing their activity in the service of the interests of the workers as well as strengthening their responsibility for the results of their work that one can find the solutions to the problems that were raised today. But the following conditions must be met:

rejection of planning from the level achieved;

the achievement of correspondence between planned volumes and allotted resources, on the one hand, and the actual conditions for production in the association, on the other (the actual number of personnel, the technical level, the increased complexity of the items, the reduction of the quantity of items in a series, and so forth);

the granting to the enterprise of the right to determine its own assortment of items which it produces with the agreement of trade organizations;

rational specialization of enterprises of the RSFSR Ministry of Light Industry within the framework of the republic;

revision of wage rates and salaries in the direction of increasing them to the level that is accepted in other branches of industry.

It is quite clear that it is necessary to redistribute capital investments in favor of light industry. One of the features of the new economic thinking which was discussed at the June (1983) Plenum of the CPSU Central Committee, in my opinion, consists in the large amount of attention paid to social problems, in the turn toward the industry of providing for people and toward branches which engage in man's life support.

We attach a great deal of significance to the experiment in introducing collective forms of labor organization, including the brigade contract. The participation of foremen and engineering and technical personnel in this experiment seems very promising. The creation of large associations which was discussed today also seems promising.

In the complicated modern stage of economic construction the role of the highest level of management personnel is becoming more and more significant. There is a mass of examples in which the appearance of a capable leader has changed an enterprise from the category of backward or medium into the category of leading. In the branch there are problems which simply cannot be solved by traditional methods. It is necessary to take a courageous look from outside and to get rid of many ideas and management methods which have become customary. Therefore it might seem expedient to enlist small "brigades" of managers from other branches of industry where a bold, forward-looking approach which relies on scientifically substantiated solutions has become the norm, where there is experience in solving social problems and intelligent application of modern methods of production organization.

The complicated problems which are facing the branch today can be resolved only by taking decisive measures.

Economists Comment

At the beginning of the 1970's there arose in the country the problem of selling light industry products, including sewn items and footwear. Up until this point there was a process of purely quantitative increase in the branch's share in consumption. As the demands were satisfied and items began to accumulate higher demands were made for quality. The very concept of quality also changed. Monetary incomes of the population increased, which made it possible for the masses of consumers to acquire more expensive goods of better quality. The demands of the population increased, which was brought about by a higher educational and cultural level, the influence of the mass media (mainly television) and the increasing mobility of the population. Novosibirsk enterprises and the house of fashions took the path of making more a complicated model of fashions and reducing the sizes of the batches of products that were produced. But planning was as oriented toward quantitative indicators as it was before. Moreover, in the 1980's a change in the structure of consumption began in favor of housing, means of transportation

and the construction of summer houses and gardens. The significance of quality increased even more. The sewing industry was not ready for the new situation.

The reason for many of the difficulties is the planning technology in effect in light industry. The procedure for the development and approval of current plans contains many defects. In practice people are guided by criteria of "from what has been achieved" paying attention to the planned number of industrial production personnel and not taking into account the actual number. Such planning causes a difficult situation in associations and leads to the formation of a "zero flow." This is the proportion of the volume of products which cannot be produced by the enterprise as a result of increasing labor productivity. At the end of the year the plans for the output of products are adjusted and the appearance of normal work is created. As of 1985, according to the initial control assignment, in only four sewing associations of the oblast was the output of items planned for 203.9 million rubles. After more detailed consideration 23.1 million rubles' worth of items were not placed, or 11.3 percent of the initial variant of the plan.

When producing products which are known not to be in demand (but their production is envisioned by the plan) the collective has difficulties of a moral nature. A similar situation arises when for a long time the collective works to fulfill an unrealistic plan: it is convinced of the impossibility of fulfilling it and by the end of the planning period the plan is adjusted.

In order to retain the planned amounts of the fund for wages and material incentive, the managers of enterprises use output norms which they know cannot be met. The group of planning and reporting indicators is large. Managers of enterprises have little independence although the situation has improved somewhat with the expansion of the independence of enterprises during the course of the large-scale economic experiment. Attention should be given to suggestions concerning the formation of a portfolio of orders at light industry enterprises according to orders from trade organizations. Hungary and Bulgaria have experience in this.

The most unfavorable situation at enterprises of the sewing industry has to do with sewing personnel. Thus for the four sewing associations of Novosibirsk the average registered number of workers decreased during 1976-1983 by 12 percent, and sewing workers--by 45 percent. This tendency continues. Workers are the group that is in shortest supply at light industry enterprises. It is precisely the reduction of personnel in this basic professional group that explains the decline in the production volumes and the deterioration of the quality of the items.

This has involved difficulties in solving social problems, mainly in creating good modern conditions for labor and life. Thus a reduction of the series production led to a sharp increase in the labor-intensiveness of the products that are manufactured. The output norms that are set in the branch do not take into account the fact that during the period of the assimilation of new items the labor-intensiveness of the work is higher than with series production. Frequent changes to new products increase the demands on the skills of the workers. The intensiveness of the labor of the more experienced

and skilled personnel increases. Frequently, in order to fulfill the difficult output norms, the sewing workers come to work an hour early and leave 2-3 hours after the workday is over. The sharp increase in the intensiveness of labor (it is greater than the average in the national economy) is one of the reasons for the mass outflow of workers to other branches of industry.

The prestige of the sewing profession is declining although according to previous ideas this profession seemed honorable and interesting for women. There is no occupational selection for admission to the GPTU. Therefore many students during the years of their training become disenchanted with their future occupation. About 50-60 percent of the graduates do not go to work at all. The difficulties affect young workers at the enterprise as well. The output norms for them are the same as for regular permanent workers. The chronic failure to fulfill the norms has a negative effect on the moral climate. The difficulties are exacerbated by problems of having families, the specific nature of interrelations in a female collective, and so forth.

It is necessary to return the sewing profession to its former glory and make it prestigious so that the sewing workers will reveal all of their capabilities in their labor and so that their children will not have a negative attitude toward their occupation. The situation is similar with engineering and technical personnel--the main reserve for the selection of management personnel. And the difficulties in selecting management personnel merge with the imperfection in the practice of management. It is no wonder that in sewing associations of the city there prevails not a cautious, but a reactive style of management. Management problems are solved at the time they arise, and not under a planned policy. Managers limit their tasks to the fulfillment of current plans. Here they frequently take measures which undermine the base for normal operation in the future, for example, increasing the intensiveness of labor without the proper compensation with pay for overtime and the development of a negative attitude toward labor as a result of this.

The significance of the long-range approach has decreased. Even certain top managers cannot formulate clear-cut reference points for the development of enterprises for 5-10 years, they have no ideas about the tendencies in the area of technical equipment and technology, and so forth. Therefore no planned reserves are created for solving future problems related to technical equipment, technology, various kinds of support for production, personnel, daily life and so forth. There is no scientific basis for making long-range decisions. Hence the difficulties that arise are frequently regarded only as a external ones with respect to the enterprise.

An investigation shows that the branch has no strategy for providing equipment. Thus the technical level of Novosibirsk light industry enterprises lags significantly behind the modern world level. The technological flow lines in sewing associations are equipped with domestic and imported equipment of various classes, types and kinds. This is not a system of machines but a group of extremely different kinds of equipment. Moreover a lot of it is obsolete. Only from 16 to 38 percent of the equipment has been in service for less than 5 years. The spare parts for the domestic equipment for the

enterprise satisfy only 70-80 percent of the need, and for foreign equipment--40-50 percent. Many machines are unreliable. Therefore frequently costly automated devices break down and the machines are utilized in the traditional way, although the cost of these sewing machines is 1,500 rubles, while machines similar to these in productivity but without the automation devices cost 100 rubles.

The rates of introduction of the achievements of scientific and technical progress are low. Thus during 4 years of the 11th Five-Year Plan (1981-1984) less than 4 million rubles were allotted for these purposes for enterprises of the sewing industry. This is clearly inadequate. During these same 4 years 579 units of equipment were installed in enterprises of the sewing industry, as a result of which 16 shops and sections were comprehensively mechanized. They introduced 21 comprehensively mechanized flow lines. The number of people engaged in manual labor decreased by 240. Thus in order to mechanize the labor of one worker it is necessary to install 2.4 machines. That is, the new equipment was not used sufficiently for mechanization of the labor of workers.

The existing tendency in technical equipment of production and also the poor quality of certain equipment, in the final analysis, lead to a reduction of the output-capital ratio. In order to service such different kinds of equipment it is necessary to have masters with high qualifications, of which there are almost none at light industry enterprises.

One of the reasons for the significant losses in the basic production is the low level of auxiliary productions (manufacturing patterns, measuring fabrics, spreading them on the cutting tables, loading and unloading work and so forth). The repair services do not satisfy the needs of the enterprises. They do not have the necessary mechanisms and machines, and the transportation has not been updated for 8-10 years. The enterprises are in need of radical technical reequipment.

The creation of production-trade sewing associations could be a major step on the path to solving many of the problems of sewing industry enterprises. With respect to Novosibirsk it would be possible to join together the sewing associations which are located in the oblast: imeni TsK Soyuza Shveynikov, Severyanka, Sorevnovaniye, Detskaya Odezhda, and also the Novosibirsk Repair Plant of Zapsibshveyprom and the Novosibirsk House of Fashions.

A possible structure for the association:

basic production for mass sewing of clothing with experimental, preparatory and sewing subdivisions;

auxiliary production, including transportation, repair, construction, housing-operations and other subdivisions;

a large scientific laboratory or division of the branch institute;

a planning-design and technological division (SKTB);

a computer center equipped with modern computers with a developed network of peripheral devices;

a house of fashions (possibly with its own experimental production);

the training and pedagogical subdivision, including vocational and technical schools, laboratories for developing training and methodological materials, for planning and organization of the training and retraining of personnel, vocational orientation of youth, and adaptation of personnel at the enterprise;

a subdivision for control of social processes in production and in daily life;

a commercial subdivision which can include a network of firm stores, cutting salons and demonstration of clothing;

a subdivision for providing workers with food products, including buffets, dining rooms, a subsidiary farm, order tables, and so forth.

The basic idea of such an association is consistent unification of all links in the chain of the creation of new items and intelligent concentration of production as a basis for making decisions concerning social and economic problems.

A certain effect should also be expected from consolidating management and economic services. Centralization of planning subdivisions will make it possible to single out a group of individuals whose responsibilities will include a permanent solution to the problem of the long-range development of the association. Centralization of supply services will make it possible to better supply the enterprises with raw materials and equipment. Centralization of accounting work is a basis for its automation and for increasing the proportion of analytical work, which will make it possible to utili e more fully the potential of the most experienced workers in the management staff. In a large collective it is easier to arrange training of management personnel, an efficient system of salary increases, and the formation and constant improvement of the personnel reserve of managers.

A large association is in a position to create a subsidiary farm and to cooperate with the kolkhozes and sovkhozes in the exchange of vegetables or the fattening of hogs in exchange for industrial services. In a large enterprise there are additional possibilities of cooperating with construction organizations in housing and cultural-domestic construction.

It is also feasible to have cooperative ties with machine-building enterprises for modernizing equipment and with light industry enterprises for creating common facilities for social and cultural-domestic purposes.

FOOTNOTES

1. EKO, No 10, 1984

2. The collective contract and the experiment in the introduction of collective forms of labor organization which is being conducted in Novosibirsk will be discussed in greater detail in one of the next issues of EKO.

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READER SUGGESTS WAYS OF IMPROVING BUSINESS

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 103-104

[Article by G. I. Pasechnik, deputy head engineer for new technology of the Rastov Footwear Factory: "A Reader Suggests"]

[Text] I should like to draw attention to two aspects. The first is improvement of planning indicators.

In order to satisfy the popular demand for such a kind of product as footwear, it is necessary to know precisely how much and what kind of footwear must be produced and in what proportions it must be delivered to each population point (city, settlement, village and so forth).

The per capita output of footwear is the main indicator that characterizes the degree of satisfaction of the needs of the population for footwear. But it cannot increase endlessly for every consumer of footwear can wear a certain reasonable number of pairs of shoes each year. Therefore specialists in the footwear industry are interested in indicators that are differentiated according to type, kind and age parameters. These are included in the indicator of the efficient norm of consumption of footwear, which characterizes not only the quantitative consumption of footwear in the country as a whole or in the territorial economic regions, but also the qualitative consumption of footwear according to types and kinds.

It is necessary to introduce rational norms into the practice of planning, but not as constant amounts, but as ones which change over a particular period (five-year plan) depending on the raw material resources, the rise of the material and cultural level of the population, the birth rate, and climatic and national peculiarities.

The second aspect is the rearrangement of the branch structure. Combining the interests of industry, trade and the consumer could play a large role in satisfying the popular demand for footwear. To this end it is necessary, in our opinion, to create territorial trade-industrial complexes. Such organization of the system of production and sales of products will make footwear enterprises and trade directly dependent on one another and will arrange for feedback between them.

The trade-industrial complex answers to higher agencies both for the fulfillment of the plan for the production of footwear and for the provision of the region's population with footwear as well as the fulfillment of the plan for commodity turnover. Each complex should independently conduct artistic consultations for approving styles and wholesale industrial trade fairs for the sale of footwear, and they should also resolve all problems related to the change of the assortment.

The main tasks of trade-industrial complexes could have the following appearance:

to provide for maximum satisfaction of the demands of the population of a given region for footwear in the necessary assortment on the basis of local peculiarities;

to independently rearrange the flow lines for the assortment which is needed by the consumers of the region;

to concentrate artistic design and construction of all footwear produced by the footwear associations of the region in a single center--the house of fashions or the design center of the region. Artistic consultations and wholesale trade fairs should be conducted here.

To develop and, in conjunction with oblast trade bases, implement plans for satisfying the demand of the region's population for the necessary footwear.

The RSFSR Ministry of Light Industry has two industrial associations for producing footwear. In our opinion, on the basis of the Rosobuvprom Association, whose enterprises are in the European part of the RSFSR, it is possible to create five trade-industrial regions: Leningrad, Moscow, Central, Upper Volga and Northern Caucasus--which are based on one of the large associations or enterprises located in each region. For example, the Leningrad region based on the Skorokhod Association.

The highest agency for management of the complex could be the council. It should include managers of footwear enterprises, people in charge of Rosobuvtorg oblast bases, and representatives of party, trade union and Komsomol committees, local soviets of people's deputies and specialists from various occupations. The council should be headed by the manager of the region's head enterprise.

I think that the creation of a TPK will increase the effectiveness of production and the consumer will be provided with the necessary quantity and the necessary assortment of footwear.

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WORKER MIGRATION TO NEW CONSTRUCTION PROJECTS DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 105-111

[Article by V. P. Chichkanov, corresponding member of the USSR Academy of Sciences, director of the Institute of Economic Research of the Far Eastern Scientific Center of the USSR Academy of Sciences (Khabarovsk): "To the New Construction Site: Experiment in Collective Migration"]

[Text] In the USSR national economy a change is being made from individual forms of organization and stimulation of labor to collective ones. More than two-thirds of the workers are employed in brigades and engineering and technical personnel and employees are attached to them. But the level of awareness and behavior is expressed in something else--in migration. Yes, here is precisely where the dilemma arises: "I am leaving" or "We are leaving." Active economic work is taking place on approximately 50 percent of the territory of the Soviet Union, and the assimilation of the rest of the territory is a matter of the future. We already have a certain amount of experience in drawing into economic circulation those regions with difficult, sometimes extreme natural and climatic conditions, which are sparsely populated, and which are little suited for life, not to mention labor activity. Norilsk and the north of Tyumen Oblast are clear examples. The recent labor movement to the "construction project of the century"--the BAM--illustrated the new possibilities of providing labor force for the regions that are richest in natural resources.

A potential of the local population of the newly assimilated regions, as a rule, is not great. It is necessary to enlist workers from other regions of the country. Many difficulties lie ahead for the planner and the manager here. How does one take into account the individual goals, interests and motives of people, and how does one develop them in such a way that they move in the necessary direction? Social and personal interests are interwoven in the most capricious way and it is fairly complicated to control them, guiding them in the necessary direction.

In the final analysis the measures that are being taken seem successful. For example, during the past 2 or 3 decades the Far East has achieved more than one-third of the increase in its resources as a result of migration. This not only satisfied the need for working hands to a considerable degree, but also

had a positive effect on the conditions for natural reproduction in the region. But we cannot but be interested in the "internal" side of migration: How does it take place and what motivates people? This is also important because more and more regions, including those which recently were thought to have a surplus of labor, are being included among the ones with a labor shortage.

There are many people who are drawn to the east and the north by the magnet of high wages. But one should not exaggerate the significance of material incentives. Thousands and tens of thousands are motivated by the possibility of improving their position in life, enthusiasm and civic duty. This during the first year of the construction of the Baykal-Amur Mainline, the social and production organizations that were constructing the railroad or supervising it received more than 150,000 letters from people desiring to participate in the construction project. Tens of thousands of people simple "drifted" there.

But still the majority of the people arrive, figuratively speaking, have a return ticket in their pocket. Even in the most prestigious newly assimilated regions, two-thirds of the people do not last for more than 3 years. Such a "changing of the guard" costs the society extremely large sums, which have already been calculated by economists. In many cases the time of arrival in these regions is also stipulated: 3 years after the VUZ, and the time period of the labor agreement under organized recruitment, and the 3-year period is stipulated for people arriving with Komsomol passes. For a number of other reasons as well the intensive turnover of labor resources transforms the regions of new economic assimilation, to put it bluntly, into a "large train station" along with the consequences of a "suitcase attitude" that ensue from this.

So far the formation of labor resources in the new regions has been done by the trial and error method. According to the results of a selective questionnaire conducted by our institute, more than 60 percent of the people leaving the newly assimilated regions have given as their reason a reestimation of their physical and spiritual capabilities. How does one eliminate the randomness and arrange control and thus avoid losses? First of all, in our opinion, we should change the process of forming the flow of migrants at its source, for all of the subsequent achievements or difficulties originate here. Up to 80 percent of the shifts of labor resources in newly assimilated regions take place through unorganized channels. But with the construction of the BAM more than half of the workers were enlisted in a planned way. A fairly large number of variants were tried: individual invitations, labor agreements under organized recruitment, transfers because of relocation of the enterprise, detachments of volunteers responding to public appeals, the dispatch of young specialists and so forth. A kind of economic experiment which was conducted which provided an immense amount of material for study and improvement of the system of control of migration processes.

One of the conclusions is the recognition of the fact that the existing agencies and methods for enlisting labor force make it possible to provide "numbers." But this cannot be satisfactory: we need not simply working hands, but workers with certain occupational-skill and educational

characteristics. It is impossible to get along without selecting the migrants and testing them to see if they meet certain conditions and requirements for work. In addition to purely occupational qualities, it is necessary to evaluate special physical and intellectual qualities because of the intensive labor in the severe climatic zones, as well as flexibility, adaptability and resilience.

How does one carry out such a selection? Practice has shown that the answer to this question lies in drawing the workers to the new regions in an organized way as parts of production collectives which are formed beforehand, which have production experience, which are structured and which have active social organizations. This is the way that the applicant undergoes fundamental, comprehensive preliminary preparation and initial selection, which is impossible if thousands of individual workers are brought to the construction site and "weeded out" on the spot. The effectiveness of this form has been clearly demonstrated by the patronage detachments on the BAM which were formed in all union republics and in 30 krays and oblasts of the RSFSR.

As with the brigade form of organization and payment for labor, the detachments worked for the final result, for "their own" station--from the planning and delivery of materials and equipment to the release of the fully constructed settlement with the entire complex of social and cultural-domestic service. In addition to production tasks, an important aspect of the activity of the patrons was "social planning" of the new collective, a scrupulous selection from the rank-and-file workers to the managers who were delegated for construction.

The patronage detachments avoided a multitude of difficulties that were experienced by other formations. There was no need to "nudge" one another, each had his own duties and paths of growth along the horizontal and vertical, and each knew his own pattern. Professionals came to the construction site--skilled construction workers, machine operators and managers, and there was no need to teach them along the way. The discipline was a model for the rest, and labor turnover was according to the plan (the completion of the contracted time period or the transfer to a new position). Having transferred to the BAM, the patronage detachments retained their departmental affiliation. Thus there was a "long watch" which was well-organized and formed.

High personal and collective responsibility is a distinguishing feature of the patrons. And this is no accident: it is as though they represent the entire republic, kray or oblast. It is not surprising that the quality of their plans for building residential villages is higher as is the quality of the work they do. A "unified contract" for the creation of a new station contributed to successful economic organization of the work. Each settlement had one planner, a single contracting organization and one person who was responsible for comprehensive development.

The merits of the patronage system were manifested especially clearly in the collectives of Ukrstroy and MoldavBAMstroy. As a result of the large amount of planned preliminary organizational work on the part of organizations of the Ukraine and Moldavia, the collectives of construction workers adapted to the

new conditions in short periods of time. In Urgal it took less than a year and in Alonka only 3.5 months to construct facilities of the production and social infrastructure, and the work front was fully developed. There was no need to withstand the difficulties of a disorderly existence and there was no need to build up housing under the policy of "self-instruction" after a hard day at work--all these problems were solved ahead of time consistently and in a well-thought-out way.

Ukrstroy and MoldavBAMstroy were formed as collectives of workers who were at a good age and had high professional and educational levels as well as considerable experience. The qualitative proposition of the labor force of the subdivisions considerably surpassed the general BAM indicators. Thus a large proportion of the members of the collectives had more than 5 years of work experience. the average category of the workers exceeded 4.1, and the general educational training of the construction workers was fairly high--almost all of them had a secondary and a higher education. When staffing the detachments they achieved a "merging of youth and experience": the workers up to 30 years of age, from 39 to 40, and older than 40 comprised three age groups that were practically the same in number.

The correctness of the tactics selected for forming the patronage detachments of the Ukraine and Moldavia is confirmed by the economic results. Thus the construction workers of Ukrstroy fulfilled the plan for the 10th Five-Year Plan by 122 percent. The rates of increase in labor productivity were also exceptionally high: during the five-year plan they increased for the Ukrainians by 32 percent. Production plans were also overfulfilled by the construction workers of Moldavia. The plans were fulfilled with excellent and good quality of work and reduced production costs.

The patronage organizations also predetermined the paths for improving such a form of enlistment of workers for construction sites as public call-ups. This way the newly assimilated regions receive socially mature people who are morally prepared to overcome difficulties. But, as a rule, those who respond to the call-up have neither experience nor skills. Costly time is spent on acquiring that. It is necessary to find new methods for organizing work with young volunteers. While initially the public call-ups were an organizational form for mobilization and delivery of militant workers to the construction site, subsequently there was a changeover to the formation of production collectives: vocational training and fairly long (up to 3 months) temporary duty for candidates to be included in the detachment. At the very beginning of the construction project, it should be noted, 20-30 percent of the people who arrived were professionals, and by now it is already up to 70 percent.

Of course it is hardly reasonable to expect absolute stability from the patronage detachments. Movement of personnel is inevitable. It is more important that the "backbone" of the permanent personnel consisting of 30-40 percent of the collective makes it possible to maintain a high level of relations in the collective, to accumulate production and social experience, to utilize the institution for tutorship effectively, and to create and maintain traditional enterprises. A favorable influence is experienced from this not only by the collectives themselves, but by the entire system of labor resources of newly assimilated regions and the country as a whole. The stable

"nucleus" of the patronage detachment is a force around which revolve in the necessary "orbits" what are usually such mobile "electrons"--migrants.

One can say with confidence that not a single large program for the development of new regions has had such an efficiently organized redistribution of labor force as the BAM. Planned control of this process has risen to a much higher level. The task of science is to study the experience that has been acquired and to answer a number of crucial questions. One of them, for example, is what kinds of collectives to form: for pioneer assimilation, the creation of the foundations of the infrastructure or for the creation of a stable population in the region? Obviously it is impossible to combine these goals and one should not look for a universal solution. For example, highly skilled workers who are capable of rapid physical and moral adaptation, who are mobile and involved, should comprise the main part of the collectives which assimilate the new regions. They should be used for the optimal time periods. Labor resources of a somewhat different type are necessary to reproduce the permanent population.

It seems to us that the approach to the formation of the labor potential of Pioneer management in the east and north of the country has been developed. It should be studied carefully and utilized maximally.

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WAYS OF ECONOMIZING ON LABOR REVEALED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 111-119

[Article by A. V. Kormilkin, Division of Wages and Economic Work of the AUCCTU (Moscow): "Channels for Losses and Reserves for Economizing on Labor"]

[Text] In recent years certain positive results have been achieved in the utilization of working time and the retention of personnel in production. Calculated losses of working time have been reduced and turnover has decreased.

The greatest success has been achieved by associations and enterprises where strengthening labor discipline and streamlining the utilization of work time are regarded not as a short-term campaign but as a program of action that is calculated for the extended period and is coordinated with a complex of technical, economic and social measures.

There are many examples of this kind of approach. Thus in the collective of the Dneproshina Production Association they are implementing a long-term comprehensive program of work with personnel which envisions mechanization and automation of heavy and unattractive work, and improvement of the organization of labor and production. In the system of measures directed toward the creation of a stable collective and the development of socialist labor discipline a prominent place is occupied by the "code of moral norms of Dnepropetrovsk tire workers." It envisions incentive measures for shock labor and ways of influencing violators of labor discipline and public order. It is no accident that in the collective of the association there is practically no down time. The level of losses of working time, including because of absences, is the lowest among the enterprises of the branch.

Another example of effective utilization of work time and stabilization of the collective is the experience of the Bezmeinskiy Cement Plant (Turkmen SSR). The enterprise, which in the past had chronically lagged behind, has become one of the leading ones in the branch and the republic. The administration and the party and trade union committees have developed and are implementing in a planned way a comprehensive program which has become a constituent part of the plan for economic and social development of the labor collective. This program involves strengthening labor discipline, reducing labor turnover and

improving the utilization of working time. It envisions concrete measures which are based on a preliminary study of the condition of discipline and turnover, the utilization of working time, and an analysis of the causes of violations, dismissals and losses of time. The program clearly earmarks the people responsible for implementing the planned measures and the time periods for carrying them out, they are coordinated with the plan for improving the conditions for labor and life, the development of socialist competition and so forth. As a result the number of workers who are absent has decreased by more than one-fourth, and the number of absences as compared to the overall number of workers has decreased by half.

Appreciable successes in reducing losses of working time and stabilizing labor collectives were achieved by the Dneprovskiy Machine-Building Plant imeni V. I. Lenin, the Sumy Machine-Building Association imeni M. V. Frunze, the Lipetskstroy Trust and a number of other enterprises of the country.

But these are the leaders. Around them, unfortunately, far from everything is going smoothly. There are still many unsolved problems. For example, in the statistical reports everything looks fine, but actually the down time within the shifts is not decreasing and in a number of branches it is even increasing. Almost half of all the down time within the shifts takes place because of shortcomings in material and technical supply and the organization of production and labor. In certain branches the production program for the enterprises is supplied with individual kinds of material resources by only 70-80 percent. It turns out that the idle time of the workers has been "planned" ahead of time.

The amount of idle time is especially great in construction. The main reason for this is the lack of construction materials and mechanisms at the work positions. Thus during January-February 1984 alone, because of the timber procurement workers, the Tajik, Turkmen and Uzbek SSR's failed to receive more than half of the amount of commercial timber that was allotted.

Losses because of unsatisfactory material and technical supply are great. But frequently unconscientious managers use this to cover up their own inability, and sometimes their lack of desire to organize the production process normally.

Is it possible to accept as normal the fact that the worker himself frequently has to go to the technologist or to the warehouse worker, wasting many work minutes on this?

"When a worker comes on to his shift and has to look for blanks and instruments, losing time," said the senior gas worker of the Krivorozhstal Plant, V. D. Gvozdevich, at a plenum of the Ukrainian Trade Union Council, "the labor mood declines. And many idlers in these conditions begin to cover up their negligent attitude toward work with 'objective factors.'"

The system of regulated servicing of work positions, which has proved itself, whereby materials, blanks and instruments are delivered centrally, has not been able to make its way into the majority of enterprises, even though this

makes it possible to reduce losses of working time to less than one-third and to increase labor productivity by approximately 20 percent.

About one-third of the idle time of workers within the shift is related to the inoperability, repair and adjustment of machines and equipment. This is explained by the fact that the enterprises do not enough skilled repair workers. In machine building and metal processing alone there are 8-10 percent less of them than is required, and at certain enterprises the repair services are staffed with only 60-70 percent of the necessary personnel.

An essential reserve for increasing the effectiveness of the repair service is its centralization. Thus at the Alma-Ata Cotton Fabric Combine this centralization made it possible to introduce a system of planned preventive maintenance which is based on constant diagnosis of the condition of equipment, periodic preventive work and the compilation of a clear-cut schedule of necessary repair. As a result nonplanned idle time of equipment decreased and the number of repair personnel also decreased.

Putting more thought into the measures envisioned by plans for scientific organization of labor with respect to the organization of work positions would contribute to better utilization of work time. Improvement of the technology for production inevitably entails efficient organization of the work position. Numerous services for scientific organization of labor, which have been created at practically all enterprises, are still coping with this task poorly.

If the losses caused by shortcomings in material and technical supply and the shortage of repair personnel can be included, even by stretching things, in the category of objective factors, the work time that is lost because of violations of labor discipline is a direct consequence of omissions in the organization of labor and education work.

A good deal of the blame for this lies with the trade unions. The results of inspections conducted in Eastern Kazakhstan, Tashauz, Ashkhabad, Perm and other oblast showed that in practice in none of the enterprises that were investigated did the trade unions take advantage of the right granted to them to move a truant or a drunkard back on the waiting list for an apartment. At many enterprises truants right along with conscientious workers enjoyed additional leaves for continuous service and the days absent were not subtracted from the leave as is required by law.

The same inspection showed that at many enterprises of Leningrad Oblast and Moldavia any absence necessary entails a reprimand and a candid and businesslike discussion in the labor collective. Here they proceed from the idea that an idler is a person who is living at the expense of his comrades. Through the labor of his comrades public consumption funds are created as a result of which the state maintains low prices for many food products, low payment for housing and for urban transportation, free medical service and many other things. It is obvious that a truant and a person who violates discipline is not deserving of these benefits on a level with the good workers. Educational work constructed with this economic approach is distinguished by its great effectiveness.

In some places they have unjustifiably forgotten about such a tested method of influencing violators as the comrades' court. But what can be more effective than judgment by one's own comrades? An inspection showed that in the Tajik SSR, the Komi ASSR, and Kurgan, Arkhangelsk and several other oblasts there are many enterprises where comrades' courts are not operating at all. Comrades' courts are an immense educational force. More than 1.5 million workers and employees have been elected to them. To put this immense army into action is the task of trade union agencies in conjunction with executives. Workers of courts and procurators' offices should also help in this.

Such a negative phenomenon as excessive administrative activity in making decisions regarding violators of discipline has become more noticeable. Unfortunately, in many collectives it replaces other disciplinary measures and measures of social influence as well as daily organizational and educational work. Can one really be reconciled to the fact that at the Yerevan Tire Factory every fourth worker who is released is dismissed on the initiative of the administration? At the same time, taking away bonuses and remunerations for the results of the work during the year and other measures of economic influence were applied against violators in only two cases. As a result, the condition of labor discipline at the enterprise not only did not improve but, on the contrary, losses of working time because of absences even increased.

Discipline like efficient utilization of working time is determined by the rhythm of production. Is it really possible to count on high labor discipline in the Lipetskiy Traktornyy Zavod Association if there are constant breakdowns in production? Overtime work and work on days off in the association have increased from year to year: in the inspection the level of these exceeded the average for industry 3-fold.

Unfortunately, even in industry as a whole the volume of overtime work and work on days off is decreasing at slow rates. And the workers are brought in for overtime work mainly not in exceptional cases envisioned by law, but in order to compensate for losses associated with shortcomings in the organization of production and labor. At certain enterprises the practice of making up for absences with overtime work and work on days off has become widespread. In these cases the absences are not reflected in the statistical reports, which, in the final analysis, generates a vicious circle.

Violations of labor discipline always go hand in hand with unsatisfactory working conditions and a high level of heavy physical and unattractive manual labor. Unfortunately, during the past 20 years, as a result of the irregular development of branches of industry in terms of the level of technical supply and the content of labor, in a number of them the conditions have relatively deteriorated, dissatisfaction with work has increased and discipline has deteriorated. Thus arrears in technical reequipment of enterprises of the USSR Ministry of the Coal Industry were accompanied by increased losses of working time because of absences. In spite of this the State Plan for New Technical Equipment in this branch is fulfilled by only 80-90 percent from year to year. The development of a target comprehensive program for reducing manual labor has been put off too long.

Inspections conducted locally show that frequently the large losses of working time are the fault not only of those who violate discipline directly in production and organize people's labor poorly. A good deal of damage is also caused by poor management in the work of transportation, dining rooms, stores, polyclinics and consumer service enterprises. The "services" of the organizations are frequently fairly expensive.

Take for example the so-called leave with permission from the administration which has been constantly increasing in past years. Who are these people on leave--idlers and drunks? No. The majority of them are conscientious workers. A questionnaire we circulated showed that 73 percent of the workers leave the enterprises for private business--to go to polyclinics, housing and municipal service institutions, ateliers and savings banks in the middle of the day because at other times these institutions are closed. Frequently they leave work for an entire day. Losses of working time for these reasons are tantamount to taking many thousands of people away from work each day. Incidentally, we have the corresponding decrees regarding this, and it is simply necessary to carry them out.

Large losses of working time come about because of tardiness and early departure from work. Thus research conducted at the Frunze Plant for Electronics Computers, the Kishinev Tractor Plant and the Yerevan Silk Combine revealed that at each of the enterprises up to 150 people come to work late or leave early. Approximately every 10th person who leaves at his own request does so because of the poor operation of transportation.

At the same time there are many examples of positive work of transportation workers. Thus in Kuybyshev, Kalinin, Gorkiy, Kemerova and North Kazakhstan oblasts, on the initiative of trade union organizations, agreements have been concluded for cooperation with transportation enterprises and more than 400 special express trips have been introduced for transporting workers to the plants. In the Tajik SSR, Tashkent and Orenburg and Tselinograd oblasts they have organized the transportation of workers and employees on departmental buses. Trade union organizations of Stavropol Kray and Kaliningrad Oblast have organized special trips for transporting children to school and preschool institutions. This has sharply reduced the amount of illness of children and losses of working time of parents in caring for them. Incidentally, losses of working time because of childhood diseases exceed the total losses because of down time, and excused absences and failure to appear at work with permission from the administration.

Still many branches fail to fulfill plans for the construction of kindergartens and day nurseries from year to year. It is precisely there, because of the crowding of the existing children's institutions that one finds increased illness among the children. As a result, thousands of parents are forced to stay home from work each day and take care of their ill children.

Considerable losses of work time are caused by involving workers in various kinds of work that is not related to their main production activity (agricultural construction, cleaning streets, and so forth). In spite of the strict decisions that have been made recently concerning the need for bringing

order into the practice of these distractions, losses because of this are not decreasing. In the press it has recently been suggested that we introduce such measures as payment for labor resources.

Obviously assistance from the city to rural areas can be reflected in the development and introduction of new, less labor-intensive technologies. We have experience in this and it must be increased: for labor expenditures per hectare of area planted in grain crops, vegetables and sugar beets have remained at the same level for many years, and for cotton they have even increased. Only 40 percent of the potatoes are harvested with combines, including in the area where there are potato-sorting points--little more than 20 percent. The level of mechanization of the harvesting of vegetables is less than 20 percent and only half of the cotton is harvested with machines.

When speaking of losses of working time one cannot forget about the health of the workers. Losses caused by illness are still extremely high. And frequently the reason for the illness is either drafty rooms or unsatisfactory working conditions or poor organization of food services. According to the estimate of specialists, improvement of working conditions at enterprises could lead to increasing labor productivity by 3-8 percent. This also includes the fight against noise in the work positions, improvement of lighting of the shops and the use of ventilation equipment.

Effective utilization of working time is impossible without objectively accounting for its utilization. Unfortunately the data given by statistics concerning losses of working time are arbitrary to a certain degree. This is explained, in addition to other factors, by the poor application of technical means of accounting. At the same time the work experience of the USSR's Ministry of Instrument Making, Automation Equipment and Control System--at whose enterprises extensive introduction of a system of automated accounting using the ASU Prokhodnaya has been introduced--has shown that this can reduce the number of cases of tardiness, early departures from work and absences to one-half to one-third the previous level, sharply reduce the labor-intensiveness of timekeeping, and extensively take advantage of conditions for part-time work and a flexible work schedule.

Shortcomings in the accounting and control of work time not only make it difficult to reveal the actual reserves for economizing on labor, but also lead to an incorrect estimate of the activity of the enterprises and organizations with respect to this indicator. Frequently enterprises which have provided for more complete accounting for losses, when the results of socialist competition are summed up, are at a disadvantage as compared to those which have not provided for an objective and complete accounting of utilization of work time.

In addition to the apparent losses, as we know, there are also significant hidden losses of working time, which include nonproductive expenditures of labor. The main reasons for nonproductive expenditures of labor are incorrect storage of semimanufactured products and materials, alterations caused by mistakes and defects in the blueprints, the application of outdated, less effective work methods, poor quality of parts, elements and instruments, a

high level of the application of physical labor, and so forth. Special attention should be given to eliminating defective work.

The concepts of "nonproductive expenditures" and "losses" of working time have not yet been properly studied on the theoretical plane. Sometimes in calculations one uses, for example, complete elimination of losses or 100 percent utilization of the entire supply of time within the shift and during the day. This is unrealistic. Let us note, incidentally, that in a number of foreign firms a certain level of losses is planned and normed because they are brought about by quite natural circumstances. But in order for the normative level not to be too high it is indeed necessary to find incentives for efficient utilization of the working time which is left after the subtraction of the normal losses.

The limitations on space in a magazine article have made it impossible to discuss all aspects of the utilization of working time. We should like to show how small channels of losses merge into a good-sized river which impedes our movement forward. Working time is a form of wealth if it is utilized intelligently. When it is utilized inefficiently and there are above-normative losses the wealth decreases. There are also fewer possibilities of increasing and utilizing the amount of free time, which is the subject for a special discussion.

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IMPORTANCE OF ECONOMICAL USE OF WORKING TIME STRESSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 120-123

[Article by Ye. I. Kissel, candidate of technical sciences, docent of the Institute for Increasing Qualifications of the USSR Ministry of Machine Building for Animal Husbandry and Fodder Production (Zhukovskiy, Moscow Oblast): "How We Utilize Our Time for Work"]

[Text] During the 1980's a thrifty, economical attitude toward labor resources is becoming especially important. A most important characteristic of labor resources is working time. The quantity and quality of material and spiritual values that are produced which serve to satisfy the needs of the people depend on the amount of it and its utilization. The utilization of working time directly influences the education and behavior of man, and his ideological-political and moral level.

In recent years it seems that science has unjustifiably slackened its attention to problems of the budgeting of time and making the activity of the population more efficient. Some preference is given to studying social problems, especially free time, instead of economic problems which are related particularly to intensification of production. It is possible to obtain more free time only by increasing the production of material and spiritual goods, spending working and nonworking time more efficiently and increasing labor productivity. It is necessary to establish a rational ratio between time at work and outside of work, including free time, and we must be concerned about utilizing working time efficiently and increasing labor productivity.

Approximately half of the population is employed in the national economy. The remainder consumer what the workers produce. The number of pensioners is increasing rapidly. Millions of young people are studying in VUZes and tekhnikums, in PTU's and other schools. During the 1980's this portion of the working population will not increase while previously it has always been increasing.

There is a total of 8,760 hours in a year. Approximately 8 hours a day are spent sleeping, which amounts to 2,920 hours. The time during which a worker could be at his work position (not counting vacations and other time off) is: 41 hours x 52 weeks = 2,132 hours. This is 24.4 percent of the annual budget.

But not all of the time is spent working or used for the creation of material and spiritual values.

In the first place, subtracted from this are "planned losses"--regular and training leave, time used for performing state duties, sick time, leaves for pregnancy and birth, leave with permission of the administration, unexcused absences and tardiness, time off for various personnel leaves and holidays. The total turns out to be about 20 percent. In certain institutions and enterprises this amount is not enough. In addition, some of the unpaid vacations are not registered and sometimes when a person leaves work for personal business this is counted as job time, especially at small enterprises and institutions.

In the second place, some of the working time ("nonplanned losses") is lost because of shortcomings in the organization of labor, the absence of the necessary qualities in some of the workers, interruptions in the supply of objects and implements of labor, social measures conducted during the shift and so forth. Based on research, the amount of these losses can be estimated at 20 percent of the time the worker is at work. At well-organized enterprises it is less, but at construction sites, in institutions and in scientific research institutes and design bureaus it is considerably more. Consequently, work time comprises no more than 60 percent or 1,280 hours a year, that is, in a calendar day an average worker works 1,280 divided by 365 = 3.5 hours. Of course this amount differs among the various branches and productions.

But even this time must be divided into two parts: One of them is used for effective activity which produces a socially useful result, and the other is ineffective for various reasons: because of redoing work that has already been done, carrying out incorrect assignments and so forth. Losses are especially great for workers in mental labor, particularly in scientific research institutes, design bureaus and planning institutes if their developments are not realized in the national economy.

On the whole in public production approximately 15 percent of the annual time budget is spent on labor:

$$\frac{1{,}280 \text{ hours}}{8{,}760 \text{ hours}} \times 100 = 14.6 \text{ percent}$$

Assuming that the average man lives 65 years, we obtain: of 568,000 hours of life they spend 47,000 hours on labor, or 8.3 percent. With the average lifespan of women being 75 years they work 41,000 hours or 6.3 percent. In both cases we are speaking about people who have graduated from the VUZ. For people who do not have a higher or secondary specialized education the work period lasts somewhat longer.

Of course labor activity is not limited to employment in public production. There remains an immense amount of labor caring for children and in housework and private business. For women this amounts to approximately 4 hours a day throughout the year. The length of the work life increases if one takes into account working time during pension age. But our task is to draw attention to

ways of more efficiently utilizing mainly normal working time--that which people are supposed to work according to the law.

Not everyone is informed about how working time is actually used. Unfortunately, many people work without having a completely clear idea of the social significance of the results of their labor and they do not see the interconnection between the quality of labor and the standard of living. Showing up at work means working. This view is reinforced by shortcomings in wages, when they are poorly coordinated with the results of labor. Therefore it is necessary to consistently provide explanations regarding these issues in the mass press, literature, the system of economic education, radio and television, to show positive experience, and to organize special classes in schools, PTU's, tekhnikums and VUZes.

The question of losses of working time at enterprises and institutions is in need of serious additional study, mainly by agencies of the USSR State Committee for Labor and Social Problems and services for scientific organization of labor. They should begin with enterprises and institutions which do not apply normatives of labor-intensiveness and are not doing work to improve the organization of labor.

The level of division of labor is low in many institutions. Without delimiting the sphere of activity it is impossible to do anything essential. For example, confusion is generated and responsibility for the results of the work decreases. Highly skilled workers are forced to provide themselves with everything necessary to perform their duties, and incentives are even provided for this. It is necessary to introduce into the staffs a sufficient number of personnel for this kind of service. To solve this problem it is necessary to have assistance for the USSR Ministry of Finance and the State Committee for Labor and Social Problems. Unjustified self-service is costly, it leads to a devaluation of the engineering occupations, it causes additional fatigue of highly skilled specialists, and it reduces interest in the work and the effectiveness of their labor. The problem can be solved even without increasing the number of personnel. And the wage fund can only decrease because of this.

"Public" activity during working time has become widespread. Even general meetings are sometimes conducted during working hours. This fact again shows the inadequate understanding of the social significance of working time. Public organizations must limit "public" work during working time as is required by Soviet laws.

Losses caused by illnesses, unfortunately, are as high as usual. This issue requires special consideration. We shall present only this consideration. According to existing provisions the bonus fund of enterprises and institutions in such a way that it is advantageous to the director to have more people ill. Obviously the savings on the wage fund used for bonuses should not include the sums associated with the illness of the workers.

Losses of time from leaving work with the permission of the manager, leaves without pay, and tardiness add up to a considerable amount. Such losses can be eliminated. Especially those which are related to inconvenient schedules

in various state institutions, shortcomings in the work of the sphere of services, a disrespectful attitude on the part of its workers toward clients, and transportation inconveniences. It would be expedient to abolish the reception of citizens for personal business during their working time and regulate the waiting time at home for workers in the sphere of services, and when people are extremely late for their appointments the payment for the services should be reduced. There is one more way of eliminating losses of working time because of departure with permission from the administration or leave without pay--introducing a "sliding" schedule for the work day.

A couple of words should be said about potential working time. The experience and knowledge of specialists who have reached pension age can be useful and should be used. The rules for the utilization of specialists with higher education at pension age are such that for the majority of occupations they make it disadvantageous to continue work in their specialty. Engineers come to work as ordinary laborers, hotel clerks and so forth, that is, they cannot always contribute their accumulated knowledge and experience. It is obviously necessary to change the existing rules and encourage work where experience and knowledge are utilized more fully, and permit pensioners to work part-time.

These and other measures, in our opinion, will make it possible to utilize the limited fund of work time more efficiently and thus more successfully solve the crucial problem of the country's socioeconomic development.

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QUIRKS OF TIME SCHEDULING DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 124-125

[Article by K. K. Chubarov, manager of the Patent and License Group of the Zmamya Truda Production Association (Leningrad): "Incentive--Free Time"]

[Text] The milling machine operator makes grooves on cylinders which are bored by a lathe operator. The former can make the grooves only on the quantity of cylinders which are manufactured by the latter. There is no point in increasing the assignment for either one of them because the prepared item is the result of the labor of both.

And so there is no point in increasing the plan in terms of volume but it would be desirable to accelerate the time periods for carrying it out. Incentives were established. The lathe operator now does his work in 35 days instead of 60, but the milling machine operator did not want to "break his back" for the extra 50 rubles and he spent all of the earmarked 60 days on his work.

The lathe operator and the other outstanding machine tool operators receive their additional 50 rubles, but the prepared machine does not come off the line. It will make its appearance when it usually does, but it will be more expensive. Incidentally, the milling machine operator asked the shop chief to permit him to carry out his assignment 25 days ahead of schedule and without additional pay if only they would give him the working time that was saved as free time: he had examinations for the correspondence institute. The shop chief refused, referring to the absence of the corresponding normative documents.

Another situation. Workers of the plant are unhurriedly digging potatoes on the kolkhoz field. The assignment is 20 boxes each for "Brother." Nobody can leave the field until the norm is met. This was the order of the brigade leader. But on the next day he suggested: anyone who has dug 22 boxes can go home. Then they started working! There were no lazy movements. Within 6 hours they began to turn in their boxes and soon everyone had left. But the chairman praised the brigade leader for the preceding day and severely took him to task for the early departure of the plant workers on the next day.

Why does it frequently turn out that we are interested not in the results of labor, but in coming to work? Possibly because of the fact that certain kinds of labor cannot be measured precisely and the impossibility of doing this is extended to doing all kinds of work. Yet the science of labor probably has methods of making the corresponding calculations. It seems to us that we should work out provisions for incentives with free time: when you have done all your work you can leave. It is necessary to relieve the chairmen and other managers of the need to keep people on the premises: after all, with the more effective solution more potatoes would be dug and the people would also gain.

In my opinion, taking into account the fact that the existing material and moral incentives are not always effective enough, it would be expedient to introduce one more incentive--free time. With skillful utilization of this, according to my calculations, labor productivity could be increased by 20-25 percent without additional capital investments.

From the Editors

At a number of enterprises w. .h we shall not name it is possible to combine jobs during the course of a normal shift. For example, a repair worker (a time-rate worker) who provides for reliable operation of the machine tools assigned to him, with the agreement of the shop chief, can work on machine tools as a piece-rate worker. Normative acts are violated, but the enterprise is eliminating the shortage of machine tool operators by taking advantage of the free time of the repair workers.

Legislation allows increasing free time by reducing the working day, but with a corresponding reduction in wages. It permits evening school students to have a free work day, also with half pay. Briefly, the use of free time as an incentive is being practiced. It is necessary to expand its boundaries? The answer to this question is not clear.

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COUNCIL CREATED FOR SHOP CHIEF CONSULTATION

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 126-129

[Article by P. I. Balashov, candidate of economic sciences, production chief of the Vilnius Association for Construction and Finishing Machines: "Council of Shop Chiefs"]

[Text] Our association specializes in the output of high-pressure equipment, excavators, mobile and diaphragm compressors, painting stands and other finishing mechanisms. The annual volume of product sales is 40 million rubles. Production is characterized by a large quantity of multiplaner technological processes and extensive intraplant and interplant cooperative ties. Each day in the shops of the head plant and the branch (it is located in Kayshyadoris, 80 kilometers from Vilnius) they produce approximately 200,000 parts and about 2,000 items come from the conveyor. Today about 80 percent of all the products have the Emblem of Quality.

When the association was organized measures were taken for object, technological and functional specialization: homogeneous technological processes were maximally concentrated in order to have the most effective mechanization and automation; intrafirm cooperation was developed; assembly shops specialized in the output of particular kinds of products.

The activity of the council of shop chiefs--a new public forum of management of production in the association--also contributes to raising the level of management and organization of production.

The council originated as follows. Some time ago the condition of the management of our subdivisions was analyzed. It turned out that the shops were not always able and sometimes they did not want to make independent decisions. Sometimes the shop managers are replaced by the functional services dampening their desire for innovations and stifling their initiative. It became clear that it was necessary to change the style and methods of management of the shops, and to given their managers more independence.

First of all, the role of intraplant cost accounting [khozraschet] was increased. The shops began to receive planning assignments for the output of products not in rubles, but in sets of parts, and limits for labor, wages,

materials and batching items. Within the established assignments and the assigned limits they independently plan and supervise the course of production. All this contributes to increasing responsibility for the final result and for indicators of effectiveness.

But having been given greater independence and responsibility the shop chiefs felt that they had to meet regularly in their own circle in order to discuss current and future issues and intershop problems that arise. In the association they came to the conclusion that it was necessary to create a public agency which would organize the communication of the shop managers in an unofficial setting and would take on the responsibility for generalizing advanced practice in management of the subdivisions and organization of training. So the council of shop chiefs was created. It included managers of shops of the basic and auxiliary production and the chiefs of the largest sections. As chairman they elected a manager with initiative, the chief of the assembly shop, an honored worker of Lithuanian SSR industry, V. Ivanov. The administration and the trade union committee developed and approved provisions for the council.

Time demonstrated the expediency of the new form of work with shop managers. Here are a couple of episodes from the activity of the council.

For a long time we had been unable to arrange shipments within the plant. Many variants were suggested. But it turned out that if the proposed variant suited one shop another shop rejected it. The solution to the problem dragged on. With the help of the council of shop chiefs we managed to solve it. The Bureau of Mechanization and Automation of Production submitted for the council's consideration cargo flows among the various shops, the calculated average monthly movement of means of transportation and the average duration of one trip. This made it possible to calculate the transportation routes, the quantity of transportation, the number of drivers and loaders. After this the council selected the most expedient system of paying the transportation and warehouse workers: instead of trip sheets they introduced tickets for payment which differed in value depending on the trip and the weight of the cargo.

On the recommendation of the council of shop chiefs the transportation shop organized a section for centralized internal shipments. The repair of the means of transportation improved.

Since the new system of organization of internal shipment went into effect the number of complaints against the transportation shop has diminished significantly. Now it serves production shops and sections practically without interruptions.

The council tries to help on the spot those shops that have found themselves in a difficult situation. Not so long ago one of the mechanic's shops fell behind. The chief and his assistants under the conditions of the rapid growth of production volume and the frequent changes in the products list, became somewhat flustered. Instead of making an in-depth technical and economic analysis and, on the basis of this, earmarking a solution to the problem, they tried at any price to make up for the daily shortage of components and parts

in the assembly shop. Thus the planned basis in the work was nullified. The disorganization in the shop increased.

The council discussed the situation that had arisen. The more experienced shop chiefs suggested what would be the best thing to do. In particular they recommended not to keep everything in their own hands, but to enlist the foreman and section chiefs to take more active measures. To the shop chief's credit he understood everything correctly and took advantage of the recommendations of his colleagues. But the council did not stop with this. All of the shop chiefs, having weighed their capabilities, rendered concrete assistance: from the machine assembly shops they sent the best adjusters of automated machines; Machine Shop No 10 organized production of labor-intensive plates and housings for the unified compressor, the export section assigned three of its best welders, and so forth. Thus with the help of the other shops the machine shop overcame its arrears.

Analysis of the utilization of working time of the managers was very important in raising the level of management of the shops. It revealed that a considerable part of the working time of the shop managers was spent on conferences and meetings where they did not necessarily have to be. Only about 5 percent of the work time was allotted to problems of improving the organization of production and management.

The council informed the managers of the association of the results of the analysis of work time and certain measures were taken. In particular, they decided to reduce the number of meetings and conferences in which shop chiefs participated. Now these conferences are held only twice a week: on Mondays with the director (regarding production issues) and on Wednesdays with the head engineer (regarding product quality). These conferences are strictly regulated and no more than an hour is spent on each. They observe the rule: issues for whose resolution all possibilities at a lower level have not been exhausted will not be considered at a higher level.

At the suggestion of the council, in the organization along with intercom communications they have introduced direct communications between the shop chiefs and managers of the association, and telephones have been installed in the shop and also light signals which give warning when the daily schedule is not being met. The shop chiefs have begun to receive more information from the computer centers.

The replacement of lengthy daily conferences with two short weekly ones and the equipment of the shops with modern means of communication made it possible for the shop chiefs to save no less than 3 hours of working time each day. Most of it is used for technical and organizational management, supervision and work with people. The council is taking many steps to expand the horizons of the shop chief and improve their vocational mastery. Trips to related enterprises were useful. The Panevezhskiy Automotive Compressor Plant, and the machine-building enterprises in Minsk, Mogilev, Riga, Grodno and other cities.

The training of shop chiefs was organized in a management school. Classes are conducted once a month. In these they consider questions of improving the

economic mechanism and new methods of organizing production. Association managers, head specialists and instructors from higher educational institutions address the students. The shop chiefs share experience in economic and educational work. One of the classes was devoted to evaluating the condition and the prospects for the development of the brigade form of organization and payment for labor in the association.

The council of shop chiefs is gradually accumulating work experience. Not everything works out yet, and certain problems have not been solved. For example, they have not properly arranged contacts with the council of brigade leaders and the communications with shop chiefs in the branch are inadequate. But the work is continuing.

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TIME NORMS FIGURE SIGNIFICANTLY IN PRODUCTION

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 130-134

[Article by T. A. Samylkina, group leader, and N. M. Garkovik, Krasnoyarsk branch of the Scientific Research Institute of Labor: "Microelement Norm Setting"]

[Text] One of the ways of reducing the number of workers is to reduce the labor-intensiveness of products on the basis of improving the quality of time norms, that is, bringing these norms in line with the actual labor expenditures. For a more precise reflection in the norms of the necessary labor expenditure on the part of performers of specific operations efficient labor methods are projected on the basis of microelement analysis.

During the period of preparation of a new item for production the labor-intensiveness of its manufacture is calculated in temporary experimental statistical norms of labor expenditures for each technological operation. Subsequently such norms impede the growth of labor productivity and they must be made stricter. One must remember here that the norm for labor is the basis not only for planned calculations, but also for calculating the wages of piece-rate workers. The lower the norm, the lower the earnings as well. Hence the sociopsychological tension which holds back the assimilation of new products. The solution lies in revising norms on the initative of workers, but it is not widespread and moreover it does not solve all of the problems that arise.

The experience of a number of automotive construction enterprises is interesting: Belorusskiy, Minsk, Gorkiy and Volga. Here during the period of assimilation of new products for all technological operations they initially establish technically substantiated time norms which are calculated on the basis of general machine-building normatives. Ways have been found for providing incentives for meetings these norms. The time periods for the assimilation of the plant labor intensiveness, for example, for the MAZ-525 and BelAZ-540 motor vehicles dropped to one-third to one-fourth of the amount for the models that were previously produced.

In our opinion the effectiveness of technically substantiated operation-by-operation norms would be even higher if they were calculated on the basis of

microelement time normatives. We have analyzed a number of general machine-building time normatives and have come to the conclusion that they are intended mainly for rapid determination at the enterprises of the amount of time of auxiliary manual labor and they only give the most general idea of the method of performing the normed operations. This is clearly not enough for a consistent reduction of the labor-intensiveness of the item's manufacture.

The merit of microelement analysis for individual movements of the worker consists in that it makes it possible to consider possible variants of the method of labor which depend on a combination of these movements and the layout of the work station, and to predict the most rational. Here there is no need to conduct direct observations; it is sufficient to know the technological transfers and the organization of the work station. Real prerequisites are created for regulating the labor of workers and developing standard plans of work stations and charts of labor organization according to the experience of Novosibirsk enterprises for all technologically interconnected work stations.

The most efficient of all is to combine general machine-building normatives with microelement analysis. It is also possible to do direct norm setting from microelements in production but this method is labor-intensive and is applicable under the conditions of the utilization of computers only in cases when in the overall time expenditures on an operation there is a high proportion of manual labor. Here it is especially significant to train the workers to master the norms that are calculated using microelements in courses, in schools of advanced experience and so forth.

In order to gain the support of the workers for payment according to the planned norms that are calculated for efficient methods of fulfillment of the production operation it is necessary in the stage of the development of these norms to draw up and approve provisions which would show the worker the prospects. It is very significant that regardless of how efficient a projected labor method may be the workers are constantly improving it, including with the help of microelement analysis. Hence there is justification for revising norms which are substantiated by analysis but were not subjectively well-thought out.

It would expedient to suggest the following. Workers of the subdivision for scientific organization of labor select those technological operations for which the percentage of fulfillment of the norms is high and the time of performance of the operation depends essentially on the method of labor. Then they can conduct a microelement analysis of the labor methods of various workers, on the basis of which they can project the rational one and submit it to the instructors of production training. The instructors will train the worker. The department for labor and wages will then revise the existing norm, taking the new labor method into account.

Any system of microelements is suitable for microelement analysis of the means of performing a technological operation. We studied in detail the base system developed by the Scientific Research Institute of Labor. Its experimental verification was conducted at the Krasnoyarsk enterprises. Processes of mechanical treatment and procurement, forge-press, welding-assembly, winding

and weaving processes were studied. The base system of microelements determines precisely the labor expenditures. The normative time spent throughout the system deviates from the actual time for individual operations by no more than 1.5 percent. Savings on working time as a result of streamlining labor methods provides for an increase of labor productivity of up to 15 percent.

Norm setting for labor in terms of microelement normatives of time includes:

recording the labor process with the help of a set of microelements;

establishing the values of factors that determine the time normatives for each microelement;

searching through the tables of values of time for microelements that are included in the labor process;

totaling the values of time for each microelement, taking into account the rules for combining movements.

The final result of the procedure of microelement norm setting is a chart of the microelement content of the labor process in which individual devices, labor actions and movement are singled out.

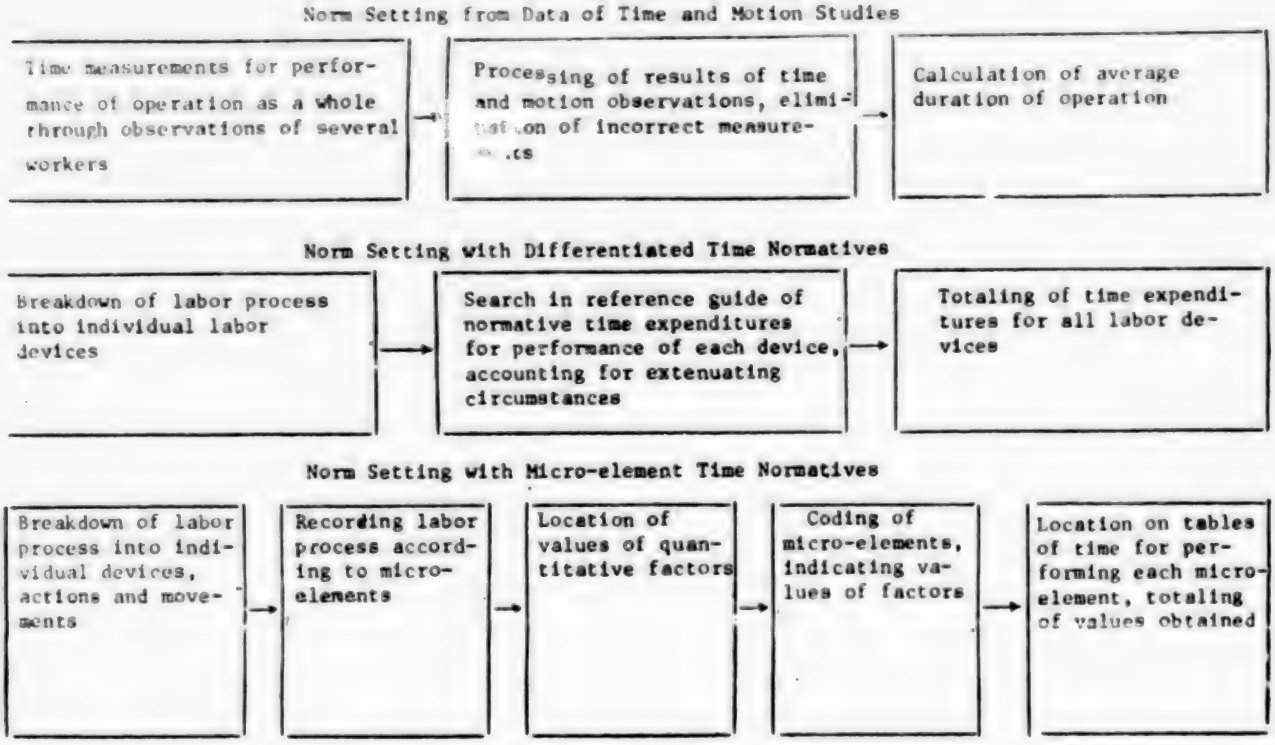
In the column titled "Name of Microelement" one enters the labor movements in the sequence in which they are performed during the course of transformation of the object of labor. Each movement is recorded individually for the right and the left hand. With combined movement of each hand or when both hands participate simultaneously the corresponding microelements are entered on one line. The sequence for performing the movements is indicated through numbering.

In the column titled "Code of Microelement and Its Factors" one indicates initially the code of the microelements and then in the first parenthesis, the symbols and numerical values of the quantitative factors and in the second parenthesis--the codes of the characteristics of the qualitative factors.

The distinguishing features of the microelement method of norm setting for labor as compared to norm setting according to data from time and motion studies or differentiated time normatives for labor devices can be clearly seen with the help of the following chain (see table).

Breaking the labor process down into individual labor movements increases the labor-intensiveness of norm setting as compared to the utilization of differentiated time normatives. But it becomes possible during the process of norm setting to carry out a microelement analysis of the method of performing the labor process and its organization and to project an efficient variant. The norm is established only if the method of labor is entered. This makes it possible to have the processes of norm setting and the study of efficient devices of work serve the same goal. No less important is the fact that one is able to retain the objectiveness of the establishment of labor expenditures which is inherent in the normative method and the concreteness of norm setting

that is inherent in the time and motion method because of taking into account those conditions in which the labor process takes place in a given section, shop or enterprise. The possibility of planning creates prerequisites for accounting for advanced organization of labor.



Experimental introduction of the base system of microelements were calculating the norms from the example of assembly and weaving work has shown that the effect is achieved both as a result of streamlining and as a result of changing the normative base for calculations. Microelement norms should be regarded as the possible extremes which must be mastered in stages.

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NEW WAYS OF CALCULATING LABOR INDICATORS PRESENTED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 p 135

[Article by G. N. Katsman, propagandist of the economics school, labor veteran (Leningrad): "Calculating Labor Indicators in a New Way"]

[Text] Including among the workers of the enterprise those people who are working only a partial shift or a partial week (and these are the conditions that are best for pensioners, students and housewives) worsens the indicators of labor productivity and output per worker, and also--if not immediately, then in the future--can lead to a reduction of the limits for labor and entail an unjustified reduction of the staff. Naturally, managers of enterprises are afraid of utilizing this reserve of labor force.

In my opinion, in order to enlist additional labor resources into production it is necessary to change the methods for calculating the labor indicators. Let us say that a shop has a shortage of 20 staff workers. We hire 25 pensioners who work a partial week--they have an additional day off. When they work 4 days a week their output is 100 man-days, which corresponds to the output of 20 staff workers. Therefore when calculating labor indicators it is necessary to take into account 20 conventional workers and not 25 actual workers.

With an incomplete working day the calculation should be analogous. For example, if two people are working on a schedule where one works from morning until lunchtime and the other works after lunch until the end of the shift, they should be regarded as one conventional worker. In combination with stable limits for labor for the five-year plan this method of calculating could solve the problem of providing labor resources, especially in unskilled jobs.

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PROBLEMS WITH EXPERIMENTAL PRODUCTIONS NOTED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 136-138

[Article by V. I. Parfenenko, chief of the experimental production of the Mosstroy Special Design Bureau (Moscow): "Problems of Experimental Productions"

[Text] At the present time there is no unified set of provisions that determine the structure of experimental productions, their hierarchy, material and technical supply, planning and accountability, and material incentives. From our standpoint such a set of provisions is needed. Now some of the experimental productions under the jurisdiction of scientific and technical organizations are on independent works while others are on the books of scientific and technical organizations.

It is especially difficult to organize work in experimental productions that are included as parts of scientific research institutes and design bureaus. The number of administrative and management workers for these productions is intended to be very limited. Because of this difficulties arise in the technological and organizational-planning preparation of production, which is reflected in the time periods for the manufacture of models of new technical equipment and their quality. It is assumed that the technological and organization-planning preparations of experimental models are done by the scientific and technical organizations of which the experimental plants are a part. But, as a rule, specialists of scientific research institutes and design bureaus do not know production well enough and are not able to carry out this work skillfully.

The experimental productions on independent books are in the best position. They work according to standard structures of series production plants of the corresponding categories and experience no difficulties with personnel. But they do have their own problems which are related to the specific nature of individual production. Therefore they are not fully satisfied by the structure of series plants.

The experimental production of the Mosstroy Special Design Bureau is included in the design bureau as a subdivision. Each year we produce about 100 kinds of items with an annual volume of 1.7 million rubles. These are mainly models

of new technical equipment and means of mechanization for construction projects of Moscow which are manufactured according to documentation of the Mosstroy Special Design Bureau and other design organizations of Glavmosstroy. Among them are universal cargo grasp devices with automatic manipulators for assembling large-panel buildings. They automatically change the covering panels from a vertical position to a horizontal one while they are being lifted and delivered to the place where they are to be applied. We also manufacture hydraulic equipment for moving buildings which makes it possible to place buildings on new foundations while retaining all of the above-ground part of them (in 1984 this equipment was used to perform a unique operation for moving the stage part of the Moscow Academic Art Theater, models of pipe layers, vibration plates, hydraulic hammers and so forth. Many of them were shown at the Exhibition of the Achievements of the USSR National Economy and earned awards at the exhibition. During the past 3 years alone the items earned one gold medal, two silver medals and 12 bronze medals of the Exhibition of the Achievements of the USSR National Economy.

Most of the products of the experimental production are original and, naturally, during the course of their manufacture there are many changes in the design and technological documentation. This, in turn, leads to changing materials and batching items, changes in labor-intensiveness and adjustment of calculations. Such changes take place many times before the final output of the experimental model. The corresponding services are needed to perform all this work. But in experimental production the organization chart does not include the positions of head engineer, planning-economics and production subdivisions, a division for technical control or certain other services. The lack of the necessary services creates additional difficulties in controlling experimental production.

A no less important problem is material and technical supply. About 80 percent of the overall planned volume of experimental productions is composed of experimental models of technical equipment. The items frequently differ sharply from one another and it is necessary to acquire various materials and batching items in the necessary quantities. Yet the organization of supply is the same for experimental production as it is for enterprises which have series or mass production.

According to existing provisions in April-May of the year preceding the manufacture of the models of the new technical equipment we must submit to the supply organizations a developed plan for the list of our products, and also orders for materials and batching items. By this time at best we know the names of the experimental models which are to be manufactured and their main technical and economic indicators. Therefore orders for materials are very approximate and it is impossible to order batching items at all because of the lack of a list of them. As a result in the warehouses we accumulate materials which are used extremely rarely and above-normative supplies are created. But according to the existing provisions, to exchange materials with other enterprises is possible only in limited quantities and them with the permission of the higher organizations.

All this forces workers of experimental productions to turn to the scientific and technical organizations that have developed the plan for permission to

replace the lacking materials with those which are available. The quality of the models suffers from this. The acquisition of batching items generally becomes a task with many unknowns. As a result, the manufacture of experimental models is delayed.

In our opinion, in order to improve the supply it would be expedient to organize special cost-accounting supply bases for experimental productions in large cities as parts of the Gossnabs. These bases should have small quantities of a broad assortment of materials, batching items and instruments. Additionally the bases would take orders for materials and batching items that they did not have. Until such bases are organized experimental productions should be permitted to sell small quantities of surplus materials and batching items to other enterprises and organizations and to acquire what they need in exchange. The norms for warehouse supplies should be established for experimental productions only for those materials which are regularly consumed.

It would be a good idea to create interbranch councils of directors of experimental enterprises in large cities where there are many of these productions. This would contribute to closer contacts among them and would also make it possible for them to render assistance to one another in material and technical supply, mutual cooperation, and loading equipment which is free for the time being, including unique machine tools whose efficiency factor is extremely low in experimental productions.

Implementing the proposed measures will make it possible to bring order into the work of experimental enterprises and to reduce the number of workers in supply services.

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PROBLEM OF ALCOHOLISM EXAMINED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 139-145

[Article by V. A. Miroshin, candidate of philosophical sciences (Moscow): "Economics, Health, Discipline--and Alcohol"]

> [Text] In the last issue of EKO we began to print a selection of materials on the influence of drinking on the economy, health and morality. The articles offered to you in this issue continue this theme.
>
> It is appropriate to recall the words from the decree of the CPSU Central Committee, "On Measures for Overcoming Drunkenness and Alcoholism":
>
> "Anti-alcoholic propaganda has not really been developed. It frequently bypasses the critical issues and is not persistent in nature."
>
> We have tried to take this part requirement into account.

"The Proletariat Does Not Need To Get Drunk"

The classics of Marxism-Leninism on the alcohol problem.

The classical works of Marxism-Leninism contain a number of pages devoted a problem which can be defined as "alcohol and society." Each time this problem is addressed in a historically concrete way. But the very approach, the desire to single out and analyze various aspects of the issue are important for us today, as is everything that has come from the great laboratory of thought of the founders of scientific communism.

We find the most detailed presentation of the problem in the book by F. Engels, "The Situation of the Working Class in England." The author addresses drunkenness as a factor that was weakening the health of English workers. In clear and unpitying colors he paints a picture of the impoverished, beggarly life of the English proletariat. A worker who has come home after exhausting labor really needs diversion, he needs at least something to make it

worthwhile to work. His need for communication can be satisfied only in a pub since there is no other place where he could meet his friends. "In view of all this how could he fail to experience the greatest attraction to wine, how could he withstand the temptation?"--asks Engels. And the analysis continues: "But along with these more physical factors which drive a worker to drink, hundreds of other circumstances have their own influence: the example of the majority, inadequate education, the impossibility of protecting young people from the temptation, in many cases the direct influence of drunken parents who themselves give wine to their children, the confidence that under the influence of spirits one will forget at least for a couple of hours about needs and the oppression of life; all of this acts so strongly that it is truly impossible to blame the workers for their passion for strong drinks.... But with the same inevitability with which the considerable majority of workers give in to drunkenness, drunkenness itself exerts a destructive influence on the body and soul of its victims."[1]

Such was the classical analysis of the reasons for drunkenness in the work environment under capitalism. It is typical that here Engels did not limit himself to the main factor alone--the position of the proletariat which was oppressed and without rights--but constructed a series of factors including social, psychological, moral and cultural. Subsequently, for almost a century and a half, numerous authors when analyzing the sources of alcoholism have again and again returned to the phenomena named by Engels. And today, having thrown off the class basis of drunkenness which was inherent in capitalism, we rely on the schema provided by Engels when studying the factors that contribute to drunkenness and alcoholism in our society.

Subsequently F. Engels addressed the economic aspect of the problem. In an article titled "Prussian Vodka in the German Reichstag" he gave a brilliant analysis of the fact that alcohol distilled from potatoes, with its extremely low production cost, exerted a comprehensive influence on the life of the state and made it possible for Prussia to become the "central vodka plant of the world." In the Reichstag there were debates about competition on the European market between Russian wheat vodka and German potato alcohol. This was the cause of Engel's devastating criticism of the Prussian economic machine which had become dependent on "vile raw vodka from potatoes." Here the author also traces the social consequences of this evil: "Getting drunk, which previously cost 3 or 4 times as much, has now become possible even for people without any money."[2]

Thus he named another most important factor: the availability of alcohol.

When evaluating the social consequences of immoderate drunkenness and its direct dependency on inexpensive alcohol production, Engels wrote: "The only branch of industry which has led to more devastating direct results--and not against its own people, but against another nation--was the Anglo-Indian production of opium to be sent to China."[3] F. Engels' comparison anticipated by about 100 years the conclusion of the World Health Organization concerning the recognition of alcoholic beverages as narcotics.

The position of alcohol in the Russian society also fell into the field of vision of the classics of Marxism. Speaking at a meeting of Polish patriots

in London in 1867 Karl Marx described Russia after the abolition of serfdom. He emphasized that the "liberation" "...undermined the community property of the Russian peasants, separated them and strengthened their belief in the tsar-father. It did not free them of Asian barbarity since civilization is created over the centuries. Any attempt to raise their moral level is met with punishment, as a crime. All you have to do is recall the government oppression against the societies for sobriety which tried to save the Muscovites from what Feuerbach called material substantiation of their religion, that is, vodka."[4]

For us it is important to single out, in the first place, Marx's idea about the direct connection between the level of culture, civilization and also the moral level of the population and the spreading of drunkenness among them and, in the second place, Marx's recognition of the progressive nature of Russian sobriety societies. Both considerations are quitely timely even today.

V. I. Lenin, addressing the problem of drunkenness and trade in alcohol, separated it into economic and moral aspects, as did also Marx and Engels.

In 1913 the Russian reactionary newspaper NOVO VREMYA profusely praised the tsarist government for its great management: the results of the fiscal year provided 450 million rubles in "free residuals"! In response to this loyal action V. I. Lenin published in PRAVDA an article entitled "Available Cash." Ridiculing the groveling tone of the "Black Hundred" newspaper, Vladimir Ilich began an analysis of the main sources of the "free residual" it had praised and showed: 87 million rubles--from internal loans which will have to be paid off in any event; 150 million rubles--from operation of state railroad; and finally, the largest source--185 million rubles--from raising the prices for state alcohol. "Is it not clear," Lenin writes insultingly, "that our peasant landowners are the greatest financial geniuses? Is this not proof of the "stability" of our budget?[5]

During the first years after the October Revolution V. I. Lenin repeatedly and very categorically discussed the utilization of food raw material for distilling alcohol, home distilling and also attempts to transform alcohol into a kind of monetary equivalent for physical accounts with the peasants.

In "An Addition to the Decree Concerning the Food Dictatorship," V. I. Lenin wrote: "To declare anyone...who wastes bread scraps or home-distilled vodka to be enemies of the people, to take them to the revolutionary court and them jail them for no less than 10 years, confiscate all their property and drive them out of their commune forever..."[6]

In a note to the chairman of the Maly Sovnarkom, A. S. Kiselev (1921), V. I. Lenin recalls his unchanging position: "Regarding the note from P. Smirnov I wrote you that I am resolutely against any use of potatoes for alcohol. As for Smirnov's suggestions of paying peasants for potatoes with alcohol, I categorically object to this."

Of special interest are V. I. Lenin's statements about trade in alcohol. These statements are a clear illustration of the well-known Leninist thesis

concerning the interrelations between the economy and politics, the choice between "economically advantageous" and "politically correct," in the final analysis--end and means.

In his concluding statement for the political report of the Central Committee of the RKP(b) to the 11th Party Congress Lenin explained: "If the peasant needs free trade under modern conditions and within certain limits we must give it to him, but this does not mean that we will allow trade in raw alcohol. We shall punish people for this.[8]

This position of the party is expressed in an even more developed and clear way in V. I. Lenin's speech concerning food tax at the 10th All-Russian Conference of the RKP(b): "In trade it is necessary to take into account what people are asking for. If they are asking for pomade we must give it to them. And if we manage properly we can establish a large industry for producing pomade. All we need to do is calculate how much of this pomade must be purchased and delivered in order to purchase 1,000 poods of bread (a voice from the floor: "And icons? They are asking for icons." And as concerns, here we are reminded that the peasants are asking for icons--unlike the capitalist countries who put into such things as vodka and other garbage, we will not allow this because regardless of how advantageous they may be for trade, they lead us backward toward capitalism and not forward toward communism, while pomade does not threaten us with this."[9]

One must remember what terribly difficult conditions the national economy was in at the time in order to understand the courage of Lenin's explanation: for trade it is advantageous, but for socialism it is unacceptable!

As for Vladimir Ilich's personal attitude toward the consumption of wine, in his memoirs contain repeated observations that Lenin considered the only thing acceptable for a communist was a sober way of life. Ilich's statements regarding this issue are cited in the reminiscences of an eminent activist of the international workers movement, Klara Tsetkin. In the autumn of 1920 she had a long conversation with Lenin regarding the women's issue and youth. Quoting Ilich from memory she cites these words: "The proletariat is the ascending class./ It has no need of drinking, which would deafen it or arouse it.... They need clarity, clarity and again--clarity."[10]

As we can see, both the economic and the moral aspects of the production, trade and consumption of alcohol attracted the attention of the classics of Marxism-Leninism. They regarded them among a multitude of other political and social problems of their time and they considered them in the system of overall ties in public life, and always from historical-class positions. It would see that it is precisely this adherence to principle, this unwavering class approach with an absolutely strict statement of the issue--does the given concrete policy with respect to alcohol help or harm the working class and all construction of socialism--is of unfading significance for us and serves as a reference point even today in our complicated relations with alcohol in the areas of production, trade, the budget, discipline problems, education and morality.

FOOTNOTES

1. Marx, K. and Engels, F., "Soch." [Works], Vol 2, pp 336-337.
2. Ibid., Vol 19, p 42.
3. Ibid., Vol 19, p 44.
4. Ibid., Vol 16, p 207.
5. Lenin, V. I., "Poln. Sobr. Soch." [Complete Collected Works], Vol 23, p 27.
6. Ibid., Vol 36, p 318.
7. Ibid., Vol 53, p 242.
8. Ibid., Vol 45, p 120.
9. Ibid., Vol 43, p 126.
10. Tsetkin, K., "Vospominaniya o Lenine" [Recollections of Lenin], Moscow, 1955, pp 49-50.

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HISTORY OF BATTLE AGAINST ALCOHOLISM RELATED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 145-155

[Article by Vladimir Aleshin: "The Field of a Tragic Battle"]

[Text] Father: My poor son, did you not really understand where you were going when you turned to this blood-sucking moneylender?

Son: I understood, father, but I needed money immediately, the moneylender was compliant, and the payment did not bother me....

--J. B. Moliere

The battle against the abusive alcoholic beverages began with the first years of the October Revolution. The young republic of the soviets was fighting mainly against bootlegging and home distilling since the free sale of alcoholic beverages had been prohibited in Russia as early as 1914 because of the mobilization and the beginning of military actions against Germany. This prohibition remained in force until 1925.

But home distilling continued profusely. In 1922 22,000 stills were confiscated, and 2 years later--73,000.[1] According to the calculations of V. M. Chetyrkin (1924) the harm caused from the use of food products for home distilling in 1924 amounted to 235 million gold rubles.

On 19 December 1919 the RSFSR SNK adopted the decree "On Prohibition in the RSFSR of the Production and Sale Without Permission of Alcohol, Strong Beverages and Alcohol-Containing Substances That Are Not Drinks" (IZVESTIYA VTsIK, 1 January 1921). V. I. Lenin signed the decree.

The 8th Congress of the RKP(b) (March 1990) entered in the party program: "...The RKP sets as its most immediate task: ...2) The battle against social illnesses (tuberculosis, venereal diseases, alcoholism and so forth)."[2]

Thus the principal position of the Soviet authorities was defined quite clearly. But to realize this was incredibly difficult. The country's monetary system was impoverished. And still the government did not wish to resort to mobilizing funds by returning to the alcohol monopoly.

But the financial position of Soviet Russia more and more insistently demanded cutting down emissions. As of 1 March 1922 the paper money ("sovzhaks") were not backed by gold and a total of about 48 trillion rubles were printed with a market exchange rate of 8 million rubles' worth of sovzhaks for 10 rubles of gold.3 The debate between the magazine EKONOMIST and the newspaper PRAVDA was typical of those days. It reconstructs well the essence and the tone of the disputes of that time revolving around economic problems related to the production and trade in alcohol. We wish to familiarize the readers with excerpts from this discussion.

From articles by Prof I. Kh. Ozerov, "On Regulating Monetary Circulation" and "The Evil Fate of Our Budget."

"The exchange rate of the ruble was doomed to bring us into a sea of paper money with a rudder and without a sale, and this problem of regulating monetary circulation cannot be solved under modern conditions.

"One of the powerful means of fighting against monetary inflation and raising the exchange rate of the ruble is to sell alcholic beverages.

"In 1912 the consumption amounted to 12 bottles of 40-proof vodka in one-20th of a bucket per capita. But now, keeping in mind the decline of the effective demand of the population, henceforth I will use the figures for the consumption of only 25 million buckets, that is one-fourth of the previous consumption period. This figure is more than modest.

"In this same year of 1912 the gross income from the monopoly was 824 million rubles and expenditures amounted to 198 million rubles, so the net income was 626 million rubles, or 6 rubles 59 kopecks per bucket. Now the prices of grain in gold rubles have risen. Therefore the sales prices per bucket can be increased to 12 or even 15 rubles in gold, for increasing prices here is justified by the policy of fighting against alcoholism.

"With a gross income per bucket of 15 rubles in gold and the expenciture of 5 rubles per bucket, the net income from each bucket will be 10 rubles in gold, and counting on a consumption of 25 million buckets, the net income should be 250 million rubles in gold, and at the exchagne rate on the free market there should be 100 trillion in Soviet money.

"Moral considerations should be disregarded here since at the present time home-distilled liquor is being manufactured throughout Russia and the population in certain areas is being poisoned down to last person and going blind, that is, the liquor is of poor quality. Recently, in the press in IZVESTIYA and in PRAVDA there were articles about the spreading of home distilling into the provinces.

"I suggested that about 40 percent of the income from alcohol could go for feeding the budget and this would already reduce emissions, and the rest of the paper money could be destroyed and thus the fight against paper money inflation could be waged from two sides--both through reducing the shortage in the budget and through directly destroying a certain quantity of paper money.

"It seems to me that the appearance of alcohol and wine on the market would create a certain stimulus to work. As early as 1915 a curious phenomenon was noted in our country: when the state-owned wine monopoly was eliminate the population to lose their incentive to work and in many places there wer cmplaints about this. It is necessary to take into account the low leve of the needs of our worker; I do not thin that during this time the pscyhe of the Russian working masses could deteriorate significantly.

"Of course the main objection against the sale of alcohol beverages is the poisonong of the population with alcohol, but this is being done even now if one considers alcohol to be poison. Now this is being done in worse forms--home-distilled alcohof of poor quality, and the replacement of home-distilled alcohol with rectified alcohol would be a plus from the hygienic standpoint and, moreover, the very theory of the unconditional harmfulness of alcohol has been brought into question recently by American physiologists.

"It will be necessary to create a planned network of drinking institutions..., and legalization of trade will produce money for cultural and educational work and will delay the decline in culture."

(magazine EKONOMIST, Moscow, No 3, 1922, pp 94-101)

PRAVDA responded immediately to this article. On the first page it printed a large article by A. Lvov, "This Will Not Pass." Omitting many polemical attacks, we shall quote the main objections of the author.

This Will Not Pass!

"But has the professor thought about where we will drive the shortage if we reduce it by his method and plan, that is, with the help of vodka?

"Recall the way the issue of drunkenness was posed in 1913 and 1914. Recall the protest against drunkenness, the wave of battle which was raised at that time. For then drunkenness was already like a public disaster. Hundreds of thousands of marches (true, with banners and priests in the lead), meetings, gatherings, the press, the cinema, impassioned debates regarding this question in the State Duma and the State Council.

"The clergy and other more reasonable representatives and friends of the autocracy tried to take the movement which was rising against poisoning the country into their own hands; they led it, but they did not create it. It was created by the confused awareness which appeared at moments during hangovers of where drunkenness led; it was created by women and the children of 'errant' husbands and fathers, who were swept in their unhappiness from priest to sorcerer and from sorcerer back to priest. It was created by the alarm that was growing in the masses concerning what would happen to them.

"The professor asserts one thing: 'They are still drinking home-distilled raw liquor.'

"But Mr Professor, do you and your editorial board not really understand the difference between drinking home-distilled alcohol and opening the state liquor stores?

"Indeed, up to this point we have not paid enough attention to home-distilled liquor. But why? Because we have never had such a large and painful problem. Home-distilled liquor is drunk by known drunkards, alcoholics who will drink denatured alcohol and will drink medicine that has alcohol in it. This is not the general population, not the people.

"But the monopoly poisons the people themselves, all the population as a whole. Then drunkenness becomes universal general, out in the open, and instead of being kept secret it is obvious. This cannot be compared with home-distilled liquor even if one considers that drinking home-distilled liquor is not decreasing which, of course, one can by no means state.

"All we need to do is deal with the problem of home-distilled liquor and within a year home-distilled liquor will play the same kind of role in public health as is played by cocaine or morphine. If we really eradicate it, then in any case the only ones who will break it will be those who are already poisoned, whose drinking cannot interest anybody.

"Home-distilled liquor does not play a large role in the spread of alcoholism among the population, and its very existence presupposes a battle against this spreading of alcoholims. But the state liquor stores, in whatever form you like poison the entire country, from the small to the great, and they presuppose an ever-increasing spread of alcoholism among the population with all of the terrible consequences that ensue from this, as was the case before the war.

"The suggestion of the authors of the plan to restore the "alcoholic budget" and deduct 20 percent for the fight against drunkenness is nothing more than a dirty trick. To trade in vodka and inculcate drunkenness in order to fight against drunkenness is a stupid policy!

"Further, in the opinion of Professor Ozerov, the sale of vodka which can produce up to 250 million rubles, of which 20 percent will go to fight against alcoholism, 20 percent for cultural needs and so forth, in addition to these advantages will produce one more: alcohol will be a "stimulant" for work....

"Vodka!

"At a time when there is the clearest proof how much vodka saps energy and reduces labor productivity, for the professor it is a 'stimulant.'

"And drink to your health, Mr Professor! You need vodka. But forget about your concern for the worker.

"Soviet power, which exists for the people and their economy, not to mention everything else, cannot enter on this fateful path if only because in chasing after fantasies or even a real 250 million rubles, the national economy would

sustain such losses, such violations that no amount of money will make up for them." (PRAVDA, 7 September 1922).

As we can see, the polemical tone is fairly biting, and in their heat both sides have even abandoned the weapon of argumentation.

It was still necessary to resort to opening the liquor monopoly. A candid explanation regarding this was given later (1927) by I. V. Stalin in a conversation with a foreign workers' delegation. Here is an excerpt from this conversation.

Question: "How do you reconcile the liquor monopoly with the fight against alcoholism?

Answer: "I think that in general it is difficult to reconcile them. There is an undoubted contradication here. The party knows about this contradiction and it has resorted to it deliberately, knowing that at the given moment allowing a contradiction was the least of all the evils.

When we introduced the liquor monopoly we were faced with two alternatives:

Either to go into servitude to the capitalists, giving them a whole number of the most important plants and factories and obtaining for this certain funds that were necessary in order to get by;

Or to introduce the liquor monopoly in order to obtain the necessary circulating capital in order to develop our industry through our own forces and thus avoid foreign servitude.

This is the way the issue faced us when we introduced the liquor monopoly.

Of course, generally speaking, it would be better without vodka, for vodka is an evil. But then it would have been necessary to temporarily go into servitude to the capitalists, which is an even greater evil. Therefore we prefer the lesser evil. Now vodka produces more than 500 million rubles in income. To eliminate vodka now means to eliminate this income, and there is no justification for asserting that there will be any less alcoholism since the peasants will simply begin to produce their own vodka, poisoning themselves with home-distilled liquor.

Does this mean that we shall keep the liquor monopoly in the future? No, it does not. We introduced the liquor monopoly as a temporary measure. Therefore it should be eliminated as soon as we find in our national economy new sources for new income to further develop our industry. And there can be no doubt that we shall find these sources.

Now our policy is to gradually slow down the production of vodka. I think that in the future we will manage to abolish the liquor monopoly altogether and reduce the production of alcohol to the minimum necessary for technical purposes, and then eliminate the sale of liquor together."[4]

The words quoted here were uttered by the general secretary of the Central Committee of the VKP(b) in 1927. A year later the Sovnarkom adopted a decree regarding problems of alcoholism. The explanation of these decrees and also the general picture of the state of affairs in this area are contained in a booklet by Yu. Larin, "New Laws Against Alcoholism and the Anti-Alcohol Movement." The booklet was prepared by the society for fighting alcoholism and it went through two editions in 1928-1929. Next we shall quote an excerpt from the second edition.

"Recently a special commission of the USSR Sovnarkom summed up the results of consumption of all alcoholic beverages (vodka, beer, wine and so forth) during 1926/27 and printed them in the book 'The Burden of Taxation in the USSR' (1929 edition). It turns out that about one-third of the state income from all alcoholic beverages comes from the proletariat.... With respect to numbers the percentage from the proletariat is three times greater than from the peasantry. It is understandable why under these conditions the fight against drunkenness should be developed primarily among the workers.

"The draft of the law drawn up in June 1928 by the Moscow Society for Fighting Alcoholism (which was the basis for the decrees adopted now by the government) for a number of months was under discussion at thousands of workers' meetings in various parts of the country. It was sent out to 4,000 factory and plant committees. Thus the new laws concerning the fight against alcoholism are not falling down like snow on one's head, but are falling on partially prepared public soil. This is a guarantee of their viability.

"...The new laws against alcoholism proceed simultaneously along three lines: 1) along the line of reducing the production of vodka and so forth right down to complet elimination within a certain period of time; 2) along the line of reducing the temptation by limiting trade and so forth; 3) along the line of developing a number of measures for cultural and domestic diversion from drunkenness, which is the main one.

"In the decree 'On Measures for Waging the Battle Against Alcoholism' the RSFSR Sovnarkom even in the first part instructed the Gosplan when drawing up the five-year plan for the national economy to comprehensively take into account 'tasks of fighting against alcoholism with respect to reducing production and sales of liquor and alcoholic items.' This plan was submitted to the Congress of Soviets in May 1929.

"By 1932-1933 the per capita consumption of liquor in the cities and workers' settlements, according to this five-year plan, will decrease by 70 percent as compared to the present, that is, by more than two-thirds, and in the villages--by 20 percent. Under the next five-year plan the drinking of vodka and beer will be stopped once and for all.

"...If measures of cultural and personal distraction and explanation are enough for the ordinary worker who drinks, there is a segment of chronic alcoholics who need treatment for alcoholism as for a disease. Now the SNK has decreed 'to recognize the need to create a network of anti-alcoholic clinics and other therapeutic and prophylactic institutions.'

"The laws that were published are, of course, only the first steps of the government along this path. Subsequently, after there are certain successes in the city, especially strict attention should be paid to rural areas. In the winter of 1928-1929 Kaluga and Ryazin provinces were witnesses to very interesting planned trips of workers from province centers to the rural areas to fight against alcoholism. People in rural areas received a strong and very positive impression. Such campaigns of workers to rural areas to fight for sobriety are real assistance from the proletariat to the peasantry, authentic Leninist leadership.

"Appendix. Excerpt from Protocol No 19 of the meeting of the RSFSR Soviet of People's Commissars of 29 January 1929.

"...2. To grant the city soviets and soviets of workers' settlements the right to close down any place that sells liquor, liquor items and beer (or to prohibit the sale of these drinks in them) if these soviets regard this as necessary because of cultural-social considerations or on a petition from the corresponding workers' organizations on the basis of decrees of general or delegate meetings of workers. The decrees of the city soviets and the soviets of workers' settlements to close places where these items are sold will go into effect immediately, regardless of appeals.

"C. To approve the draft of the decree of the USSR Soviet of People's Commissars that follows:

"1. To instruct the State Planning Commission of the USSR and the State Finance Commission of the USSR, enlisting interested departments and scientific institutions (Komakademiya, the Russian Association of Scientific Research Institutes of Social Sciences, and so forth) within 6 months to develop and submit to the Soviet of People's Commissars of the USSR the corresponding report on the system of measures for replacing in the USSR unified state budget incomes from the production and sale of alcoholic beverages with other incomes, indicating the sequence in which these measures would be conducted.

"2. To instruct the USSR Central Statistical Administration, enlisting interested departments and organizations, within 6 months to develop a system of reports both of direct expenditures of the state in connection with alcoholism (expenditures for social security, treatment of alcoholism and so forth) and indirect losses which the USSR national economy will sustain from this (losses in labor productivity and so forth)."[5]

We did not manage to implement all of the earmarked measures. In 1927-1928 the League of Nations rejected Soviet proposals concerning complete or partial disarmament; England broke off trade and diplomatic relations with the USSR; the situation worsened and then military conflict broke out along the Chinese Eastern Railroad; it was impossible to obtain loans from abroad. It was necessary through our own forces and in short periods of time to provide for the country's economic independence and defense capability. We began to construct Dneproges and develop other new construction projects during the period of industrialization. It was necessary to find funds for them by mobilizing internal resources. More and more new tasks and new difficulties

made it impossible to eliminate from the budget the money provided by liquor sales.

But in all the subsequent years the party conducted a consistent policy of fighting against alcoholism along all lines: administrative, legal, therapeutic and educational. The government decrees concerning fighting against drunkenness and alcoholism of 1958 and 1972 are widely known. They placed in the hands of local agencies of authority no small opportunities, levers and rights to neutralize this evil which comes from immoderate consumption of alcohol. These rights and these opportunities have been taken advantage of in various cities and regions of the country with varying effectiveness, but this is another subject which is also very important for an understanding of our successes and failures.

Today, when thousands of state and public organizations in all countries of the world are engaged in a fight against alcoholism each page of history is instructive. Those pages which we have discussed are filled with the pathos of the establishment of a new life after the October Revolution and the tragedy of individual failures. But, as always, the experience of the past provides the lessons of the future.

FOOTNOTES

1. "Bolshaya meditsinskaya entsiklopediya" [Great Medical Encyclopedia], 2nd edition, 1956, Vol 1, p 734.

2. The CPSU in resolutions and decisions of congresses, conferences and plenums of the Central Committee," Moscow, Politizdat, 1970, Vol 2, p 59.

3. The magazine EKONOMIST, No 3, 1922, p 75.

4. Stalin, I. V., "Soch." [Works], Moscow, 1949, Vol 10, pp 232-233.

5. Excerpts from Protocol No 19 of the meeting of the RSFSR Sovnarkom of 29 January 1929, published in IZVESTIYA VTsIK, No 46, 24 February 1929.

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ALCOHOLISM PROBLEM VIEWED OPTIMISTICALLY

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 155-172

[Article by B. I. Tuchin (Novosibirsk): "Overcoming Alcoholism: Optimistic Notes of a Narcologist"]

[Text] Any profession is attractive because of its mysteries and usually a specialist can recall precisely when and why he first began to try to solve them. Thus for me personally an active interest in the problem of overcoming alcoholism appeared during the 1950's, while I was a student in the old university town of Tomsk. Because of a very elementary reason--out of friendly feelings toward people who were dying from this disease. Although it was not until much later that I came to understand that they were ill and dying.

"Where I Shall Perish Fellows!"

Lesha Kormilitsyn finished the medical institute the year I entered there. The dormitory brought us together. I loved Lesha: he was an interesting conversationalist, he could give good advice, and he had golden hands--he mended slippers for some people and sandals for others. And during all this time he was taking tests and examinations. One day he fell in love and, it seems, it was not unrequited, but still nothing came of us. And nothing could come of it.

Lesha had a terrible drinking problem and I, an 18-year-old boy from a sober family, was shaken by his quite extraordinary way of life. Suddenly Lesha would be struck by an insurmountable urge to get drunk and, casting absolutely everything aside, he would run to the nearest "gin mill." Now there is no longer a trace of these institutions but at that time dear old Tomsk had an abundance of them. Lesha would push his way through the line, give his money to the bartender, take a glass of swill and literally suck it down.

But when he was sober he admitted:

"For I shall die, fellows...."

I wanted very much to help him if only I knew how! I saw it as my duty to protect Kormilitsyn, emboldened by liquor, from encounters with other rowdies, and even worse--from encounters with the police. Because of my diligence I managed for the most part to do this, and the next morning would not even be able to recall what he had done the night before.

Kormilitsyn was attracted not only by the bar and the wine, and, of course, Lesha did not go among the drinkers in order to fight. There he felt the mutual understanding he needed, it was though the public were welded together during joint drinking bouts, removed from the rest of the world by an ephemeral but dense wall.

Lesha would get drunk in any situation disdaining not even the worst. This was not true of Timka Voronov, another of my acquaintances. He, on the contrary, avoided drinking "among strangers."

Timka lived with his uncle and three aunts and they all loved him to pieces. They pampered Timoshka avidly from the time he was born. In the apartment there was a piano and it was thought that Timofey would become a famous musician.

"What do you mean, my dear friends!" Timka assured us to the contrary. "What kind of a pianist am I?..."

Brilliant guests gathered in his home--orchestra leaders, singers. The uncle was creating a dish made of potatoes fried in margarine. They sat and drank a little vodka. Actually this was the main reason they gathered.

The family lived for Timka's and the uncles "days off." The selected some old people who were still strong, made Timka the supervisor and expediter, constructed some kind of mixed feed shop or boiler. They made a killing they again drank vodka. Again in isolation, silently, without restraint, for weeks on end....

Timka was always registered as a student. I entered the medical institute and he signed up for the fourth course of the polytechnical institute; 6 years later I received a diploma and he was still a correspondence student in the fourth course.

The Veronovs called drinking at home holidays. The art of drinking there, as it were, was part of their completed, logically perfect image. Incidentally, during all the time I knew Timka, only one person responded to him with hatred.

"He is an enemy of society and nothing more!"

That woman had a daughter from him and was part of the Voronov family in a legal marriage. The latter, to be sure, did not last long.

Other drunkards have also crossed my path. The mystery of their behavior stunned...and attracted me. Some people warned me: You are crawling toward

the vice-ridden reprobates! They moralized categorically: these are heroes not of our time! They warned: Watch out! You yourself will start to drink!

I denied the danger of my starting to drink. Neither the taste of alcohol nor the condition of being drunk attracted me. I understood rationally the drinking, but my heart simply responded to another's suffering. And I thought about it all: what is meant by this irrepressible pattern that is developing before me? It was obviously useless to shake a finger at drinking. Simple people drink mainly in company, all of the drinkers should be influenced at once. But how? To get rid of all the kiosks in one fell swoop, to break bottles, to close alcohol plants?

Timka, for example, when someone said something like this, did not become angry but experienced depression and became aesthetic:

"Do you know the difference between regular whiskey and spiced brandy? Well, all right, there is not much. But still there is denatured alcohol and cologne...."

After I heard that I tossed and turned all night on my bed in the dormitory.

Our immediate supervisors, the deacons, turned out to be helpless in the fact of the drinking of the students. I chanced to hear this outside the doors of the deacon's quarters.

"If we expel Kormilitsyn, where will he go? And if we give him a diploma at least he will be able to earn his bread and butter."

They were sitting there calmly. On the other hand, obviously, they did not have the answer.

Later when I was working as a neuropathologist and head of the neurological division of the Berdsk city hospital I was faced with a choice: either to treat the alcoholics who came to me along with the other patients who were affected by other illnesses or (quite legally) to completely refuse help to drunkards. For one one was formally obligated to deal with them.

But how could one refuse?

My completely drunken comrades are no longer on this earth. Kormilitsyn froze on the road, and Voronov, also drunk, fell into the hands of a criminal. But life goes on, and many of my friends unfortunately are destroying themselves and everything around them. They must be treated. And I treated them.

New Arguments, New Approaches

Much has changed during the past quarter of a century. The wave of public indignation against drinking has carried on its crest a number of legislative acts that regulate the fight against it. Scientists have finally established clear-cut criteria suitable for mass practice in diagnosing psychological and physiological dependency on alcohol: symptoms of loss of quantitative and

situational control, high tolerance of large doses of alcohol, and changes in the forms of intoxication. Previously the orientation in diagnosis was only with respect to hangovers and alcoholic psychosis and served only for clinical analysis, it made early discovery of alcoholism difficult, and in the final analysis it left a large part of the ill people outside the realm of medical supervision.

Today new approaches have been placed on the agenda. In particular, drinking is no longer considered to be merely a remnant of the past--it is more correct to see in it a tradition which is many centuries old and has many ramifications. The lack of success of dogmatic theoretical ideas is revealed, in my opinion, in the continuing dispute between proponents of the dry law and apologists for the culture of drinking. The latter, incidentally, objectively contribute to the spreading of alcoholic views, bringing along mass confusion: sometimes they seriously discuss the possibility of crowding out "bad" alcohol, "rotgut," with alcohol in the form of good wine, and changing from drinking hard liquor to beer. As we know, even scientists of the 18th century established that such attempts are illusory! The fight against alcoholism through the bars and through the drinking salons reaches the absurd. What does one call an ordinary tavern? a "gin mill"?

The debate between the "dry law proponents" and the "cultured drinkers" emerges quite directly on the horizon of practice. Therefore I shall complete the idea. The extremes join together. Both want to develop a way of dealing with alcohol that is the same for everybody, forgetting that people are not physiologically all the same. Some are indifferent to alcohol or even find it repulsive while others are genetically predisposed to alcoholism. Different metabolism, different physiological responses to alcohol, and different attitudes toward drinking and rituals.

Organizational forms are changing significantly. At one time alcoholics were treated, as a rule, in hospitals as inpatients. The outpatient method was practiced by individual physicians, at their own risk. Now, on the contrary, we have entered upon a course toward treatment without leave from work. And when this is impossible because of the patient's condition, the physician can select any variant of hospital aid--the narcotics wards in ordinary mental hospitals and at industrial enterprises. There are institutions for compulsory treatment for violators of the law--in places of incarceration. Clinics have been opened in large cities and narcotics abuse offices have been opened in the rayons.

I was asked 10 years ago:

"Do you want to change your profession? In the Iskitimskiy Rayon Hospital they are introducing the position of narcologist for the first time. Do you want to go?"

I went. It is difficult to be the first: every step is measured, as when clearing a mine field. You are unaccustomed to everything, and others are unaccustomed to your work. Prepare for both support and hindrances.

Alcoholism is persistent; you cannot simply whisk it away. It must be persistently and methodically shattered, one must dig down to the smallest roots, break down and restructure its nutritive soil right down to the trace elements.

"Petrov--an alcoholic? What are you talking about, Doctor? If you had your way you would register everyone as patients. I too imbibe a little on a Saturday--and it is no big deal. Nothing happens to me, but you want to treat me!..."

Thanks to My Colleague-Predecessors!

The physician, if he is working alone, inevitably slides along the surface. Alcoholism is a social disaster. Well, public problems are resolved with public funds. In this sense medicine is a social institution which is linked to all the others and a person who tries to avoid socialist systems for narcologists is making a dire mistake. And we do have experience. Outbreaks of plague and cholera have been eradicated by self-sacrificing physicians, but the anti-epidemic mechanisms were still created by representatives of the authorities.

The elimination of typhus, tuberculosis and venereal diseases--this is where Soviet public health started. And the job was done thoroughly and brilliantly! In the case of alcoholism things become more complicated: the alcoholic tradition pervades the very fiber of daily life.

In our country this has been understood for ages. The physician Merzheyevskiy announced at a conference of psychiatrists in 1887: "The condition known by the name of chronic alcoholism represents the soil on which grow regrettable social phenomena which are closely interconnected...." One foreign doctor from our century defined alcoholism as an unrelenting epidemic. In the turbulent year of 1905 Professor Bekhterev wisely called for a awakening the individual in the drunkard, restoring the person, and the physician Rybakov published a plan--to cover the country with a network of treatment centers with preventive and propagandistic anti-alcohol functions. In 1915 A. F. Koni advanced the concept of the contingent of drunks in the society. In the middle of the 1920's the Moscow City Public Health Division founded a narcotics clinic with sections at plants and factories. So the pioneers lived a long time ago!...

Today, in my opinion, one can speak of a qualitative change in the understanding of the problem. The findings of our predecessors who were fighting alcohol stand out of the anabiosis of time to become a militant weapon of science and practice decades later.

Even the lexicon registers signs of the time. Today drunks are called alcoholics and this seems to suit them. I admit that for me too the work indicates the pathological nature of this vicious passion. It designates the individual who has the disease.

"Everything begins with a definition," said a familiar mathematician.

It is now recognized that there is no well-developed formula for alcoholism which satisfies all researchers. This, of course, does not mean that the complicated biosocial phenomenon cannot be figured out at all. No, it is simply that the views concerning it of psychiatrists and, say, economists, sociologists and writers do not always coincide.

Object--Contingent; Goal--Reconstruction

For purposes of practice--the elimination of alcoholism--it would seem that it would be possible to consider it through the prism of the interrelations of the contingent of the alcoholics and the society. In the dictionary we read: a contingent is a group of individuals of a particular category and, additionally, the maximum number established for some particular goal, the norm of something.

With respect to our needs a contingent is a group of patients with symptoms that make it possible to diagnose them. We have yet to say what this number is. But this should not persuade us to throw up our hands at people who are drinking or have been drinking: some people say that they are lost, that we should look after the youth! Let us hear any more about the lack of will power of drunkards. Lesha Kormilitsyn cried: "I am dying, fellows." But he was incredibly, fantastically active. Such people indefatigably search for and find people like themselves--among those who drink much and those who drink little, among those who have never tasted alcohol. They are the disseminators of alcoholic views. A fact from which we cannot protect ourselves either with rituals of moderation or with personnel or with a strict dry law.

The alternative to drinking for the alcoholic, because of his physiology, is absolute abstinence from alcoholic beverages. If we achieve this we will treat the alcoholic and we will eliminate the destructive influence of alcoholism on neophytes.

Reconstruction means to sober up this entire contingent, to transform it into a continent of sober people, thus removing the burden of alcoholics on society and breaking the process by which they attract new generations into drinking.

Thus the goal requires using organizational and methodological methods. The combined efforts of physicians and police in overcoming alcoholism suggest the first series of these methods. There arises a system of antialcoholic assistance which is capable of energetically and effectively attacking its opponent--alcoholism. While the alcoholic is making drunkards out of two or three people who are predisposed to the disease, the system manages to sober up two or three dozen people who need it.

Ideally there will come a day when all, absolutely all of the contingent will refuse to take a drink--some for a day, some for a week and some for years. But the system continues to work, with all the organizational and propagandistic force it has gathered. It does not allow relapses in the contingent, and conducts anti-alcoholic education.

Yes, but are we capable of this today? Should we not wait a couple of years. Will it not be quite a while before the conditions are right? This is a rhetorical question. Alcoholism must be restrained right now, this minute.

People expect the narcologist to be not simply a therapist, but mainly an organizer, if you will, a herald of sobriety. Therefore the development of institutions in the system of anti-alcoholism assistance goes hand in hand with the most extensive possible anti-alcoholic propaganda. I would call anti-alcoholic education the information support of the system.

Sometimes some people try to spread the idea that alcoholics avoid special lectures. But, in the first place, they are still people, just like nonalcoholics, and a person always wants information about what he is doing. In the second place--and this is the main thing--the audience will not fall down from the sky; it must be formed everywhere where one is working on the problem.

As a physician I avoid speaking in clubs before empty rooms and I refuse to speak before the idle audience in movie theaters who are just waiting for the film (movie stars, in addition to everything else, are very effective in teaching people to drink). But I love to speak in a shop, in a school classroom or on a farm. Come to the day room during meal break or as a change of shift, get the attention of the workers for 15 minutes, and do not simply gab, but prove your point in a concise and extremely informative way--and everyone will listen! And what ye reap so shall ye sow. Many times when visiting an alcoholic in a detoxification center, in the plant drug assistance point or in my office and asking how he came to the decision to be treated I have received the answer: "I was at your lecture, Doctor, everything you said was true, I do not have the strength to go on, I must accept therapy...."

Anti-alcoholic education could probably be carried out more intensively. The Ministry of Public Health and the Ministry of Public Education are "s[illegible]ling down" methodological recommendations on these subjects to the education agencies. But they are in no hurry to introduce them in the schools. Some directors blame the overloading of the training programs and some have rebuffed me this way:

"We did not learn about sobriety and we did not grow up to be too bad...."

There are, of course, far-sighted educators as well. They recognize that the main thing is overcoming the medical ignorance. Until the idea that alcoholism is an illness wins out we will not get very far. The activity of narcologists in the area of education cannot be underestimated, but still we cannot replace the teachers.

Although we treat relatively few alcoholics, what comes to the fore is the fact that their destiny cannot be changed in the usual sense of the word. The alcoholic who does not believe that he is incapable of drinking "moderately" again, tries alcohol and has a relapse. Here is what the skeptics say: "You treat them and they go out and drink again--what is the point?"

Mass attacks on alcoholism lead to a different result. More and more people are coming to the drug abuse offices motivated as follows: "I know of people who used to drink, they went through treatment, and now they do not touch a drop--that is good!" Is it not true that there is another way to turn?

A Testimony From Personal Experience

Success has followed me. The managers of the hospital shared my ideas about constructing a system and did not stand in my way when it was necessary to go beyond the departmental framework of purely public health. This is what happened with the detoxification center at the MVD institution where the participation of a medical specialist to this day is not mandatory or in any case they do not have daily reception hours for a narcologist.

Recalling how Timka Voronov's face turned green when he heard about the "intoxification center" and how he sponsored Lesha Kormilitsyn in this same treatment center, I selected the detoxification center as a basis for active disclosure, accounting for and, to a certain degree, reeducation of alcoholics. And I was not wrong.

It is amazing the people who ended up here! A 16-year girl who had been drinking in the entryway and fell asleep there, an old man well into his 70's, streetwalkers and criminals, and moreover--in the prime of life: drivers coming right from the cars, workers, machine operators, engineers, educators and even, to everyone's general confusion, medical personnel....

The detoxification center is a filter for alcoholism, a medical entry point into the system. For some people it is sufficient to spend the first night there and go through the consequences--the unpleasantness at work and at home. For others this is not enough and they end up here two or three times. Initially I would accept patients who managed to end up here up to 20 times during the course of a year.

Let me say candidly that it is a labor of love. One can see the bottom of human degradation, moral and physical collapse. But that is what a doctor is for and a doctor intervenes in life in the most critical, decisive moments. Another thing has become known: it is practically impossible to take a drunk person who has nowhere to go and hospitalize him in an oblast hospital some dozens of kilometers from our rayon center and one certainly cannot expect him to immediately settle down in the drug abuse therapy point: it is necessary to have investigations, a trial and there is the problem with a lack of space.

It was necessary to develop a network of outpatient points for drug abuse assistance. It is precisely a network for the city was experiencing difficulties with labor force, especially in unmodernized productions with harmful working conditions, and there were plenty of these. This is why punishment produced little educational effect, even when it came to firing people under Article 33 of the Labor Code which was notorious at that time.

"I was beat up by two cops," boasted some kind of reprobate, "and I went from the cement plant to Teplopribor. They grabbed me with both hands!"

And he was not lying.

"We have 14 different offices," complained the policeman on the beat. "In a year and a half the alcoholic will end up in every one, and then he will start all over again, and there is nothing to do with him--he is an idler...."

The opening of the points was constantly under the supervision of the ispolkom of the Gorsovet. The plants allotted premises, hired a medical assistant and she and I arranged relations with the shop chiefs and spoke with foremen and workers. Thus in addition to the physicians' receiving hours in the office of the polyclinic and the detoxification center there grew up a third unit of the drug abuse service.

The meetings with administrators who regarded the points as a long-awaited support in developing production discipline were a remarkable gift. At Teplopribor the meetings of sloppy workmen and absentees were regularly conducted by the director himself, a teetotaler, A. M. Kachalovskiy. The strong gray-haired man with medals on the breast of his jacket gathered all the necessary people in his office. He always considered two people to be guilty: the person who violated the policy and his immediate supervisor. The director did not "raise hell" with them and he did not make them stand at attention. The conversation was conducted in a democratic spirit, and they even discussed production problems if these contributed to drinking. The same manner of educating the collective was used by the supervisor in charge of the casting shop at the enterprise, a plant veteran, a front-line soldier, and, like the director, a teetotaler, I. V. Ivanov. Both managers kept each problem worker within the field of his attention, checked on his behavior not without concern, and exhibited demandingness and sympathy. They proceeded from the principle that alcoholism is a disease and it must be treated, and this is the best thing for the plant. Treatment, treatment.... Regardless of how difficult it was for me at times, I took evasive action and did not miss the meetings with Kochalskiy and Ivanov. I think I received a good education at Teplopribor.

No less instructive was the second type of managers who were diametrically opposed to the first. They proceeded from different premises. Drunkenness is "special," undisciplined behavior and up to a certain point one can and should put up with drunks because in emergency circumstances they work uncomplainingly and will stay for two shifts. That gives them a couple of vouchers at the end of the month and lets them take a week off at the beginning....

This style is immoral: it turns weak people into drunkards and plays on human misfortune. And it is illegal--a direct violation of the ukase of 1972 which discusses responsibility for drinking in production. But it is a said reality and since certain supervisors who are cynical and destructive had kept us from discovering and treating the patients, I have not shied away from confrontations and have brought the disputes up at meetings of the rayon commission for fighting against drinking and at the session of the rayon soviet. My conclusion: protectors of drinking who have gone too far, as a rule, are not supported even by their closest colleagues because they promote

shop work, they are boorish by their very nature, they are unconscientious, they are inclined to take bribes and to violate technology. Sometimes they are not averse to the bottle themselves.

One worker like this lost all of his impudence when one night he had to spend the night in the drunk tank. "Doctor, keep my secret...."

System, We Need a System!

The rigidity of the staffs of the city's (and rural) drug abuse network has impeded the development of drug abuse points. The hospital does not have funds for drug abuse medical assistance and the plants have introduced them throughout their network in violation of the rules. The Teplopribor plant was the first in my memory to include a drug abuse expert on the staff through the main board. It took a lot of work and the interdepartmental maneuvering led some of the enthusiasts to a heart attack.

The drug abuse point was instructed to study all of the absences, to know the patients in the detoxification center, the "accountable contingent" for the rayon, and to notify the central office of all alcoholics who had been fired and then returned to the enterprise. The medical assistants provide aftercare. They participate in anti-alcoholic projects--from meetings of the commission for fighting against drinking and workers' meetings to trip through the secluded corners of the plant and the dormitories.

To discover alcoholism on the spot, to treat it, and to promptly eliminate all relapses--these are tasks of the system for anti-alcoholic assistance which has survived and been in operation. And we have had to strengthen and load it maximally, to make it uncompromising and strict, and at the same time friendly and attractive. People must believe us, they must accept and approve of us. Is this not a paradox? The system punishes and shames people, but is still sympathetic? Yes, if it spares them, treats them and restores their jobs. If it protects sobriety and does not encourage drinking.

The system for fighting for sobriety is still rarely called a system. The system is full of wholes, it is fragmented, elements of it are within various departments, and its ties are frequently interrupted and not stable. The fundamental idea about fighting against drinking and alcoholism does not do much to mobilize it: alcoholism and anti-alcoholism are placed on the same slate, and it is not yet clear which is winning out in the final analysis.... If it is anti-alcoholism, where will all this end: in complete and universal sobriety or in a global culture of drinking?

But this image represents only the superficial view of the situation. Let us try to approach it from a different angle.

By elimination of alcohol we mean changing the entire contingent of alcoholics over to a condition that can be maintained with outpatient supervision and monitoring with mandatory achievement of remission (a period of sobriety of one duration or another) and avoiding or immediately treating relapses.

Then the system will have a strict program and then it will be possible to calculate the funds that are needed and the time limits, to select people to initiate the tests, and reliable and skilled workers. The latter--personnel--involves difficulties. Just involvement will not sustain long-term activity. But this is the subject for a special discussion.

Whatever it is the system will draw interested people into its orbit, will support their persistence, and will distribute them among the various areas.

Let us describe the anti-alcoholic system within its current limits. It is headed by the rayon soviet of people's deputies in the form of the commission for fighting against drinking. The commission relies on the drug abuse center which consists of a medical polyclinic (office) and a detoxification center. Attached to the drug abuse center in one way or another are, on the one hand, special therapeutic institutions--divisions of hospitals, drug abuse points in industrial and agricultural enterprises, and the extreme subdivisions--LPT's and treatment centers in places of incarceration. On the other hand, the educational, informative and therapeutic capabilities of the drug abuse center are utilized within units of the initial, tree narcological stage. In the collectives of enterprises, support points of teams in the place of residents, and in the family.

Information about drinking comes from various sources--from police on the beat, enterprises and families, who are not helpless as before, but can count upon effective assistance. In the drug abuse center the information is summed up, differentiated and accumulated, for which there are card files and journals. When a certain amount of experience has been achieved, it would seem, it will be possible to even develop algorithms for resolving the absolute majority of alcoholic situations.

As the main means of interaction we have selected regular comparisons of report documentation with personnel divisions, councils for prevention, police stations, report points and all units of the system. We meet no less frequently than once a quarter. I shall not touch upon the specific methods here, but I shall say that they spare the feelings of loyal, controlled patients who have stopped drinking: these people are simply excluded from this kind of joint consideration.

The service is acquiring a completed, purposive appearance, man is not lost in individual stages of it, and the entire contingent feels that people are working with him, saving every alcoholic and not allowing those who are potentially predisposed to alcoholism to fall into drinking.

The reserves of the system are impressive and they are not always predictable. We were found, for example, by an elderly, extremely active woman who was in charge of the rayon labor placement bureau. We agreed: she would send alcoholics who were capable of working to our office, we would register them if this had not already been done, and provide therapy in the drug abuse points.

I do not think that the labor placement bureau has said its last word yet. It has its own chain of command in the anti-alcohol system: bureau--shop--drug abuse point.

No, It Is Not Utopia

Today nobody is surprised to hear about a case of lengthy remission. I am occupied by something else. Is it not utopian to think about the possibility of winning over alcoholism in the historically foreseeable future, say within the lifespan of the present generation, and without a dry law?

"An empty dream, fantasy," people usually respond to this. This means that everything that can be done with alcoholism is at the level of half measures and this is the way it will be for a long time.

Despair gives rise to attempts at immediate cures for alcoholics, and there are formulas of medicines with a one-time and guaranteed effect. There is no end to the magicians with a magical education or without one, mainly among people who are ignorant or who are mystics. I know my opinion is disputed, but I insist: there is not very much that is rational here. But here is the harm: when people read in the newspapers that a "radical" treatment once and for all costs less than maintaining a polyclinic, it becomes alarming. The article is read not only by the inhabitants, but also by financial workers.

Let us try to establish the number of alcoholics in the society. Unfortunately, this can be done only approximately both for the present and having in mind the historical past. The diagnostic criterion in our day is not the same as it was 30, not to mention 70 or 100 years ago. The sardonic smile of the drunk as a qualifying indicator is observed today, perhaps, only in the person who is drinking mouthwash and falling down in the streets, who is already in the third and last stage of the disease. The charming and radiant smile on the face of a person in the first stage (according to the modern nomenclature) who has not been designated as an alcoholic, who drinks and draws other people to drink--there it is, on the screen of the television set. In no case (this is my opinion) should one base one's judgment on the number of alcoholic psychotics. At the beginning of the century they overwhelmed the doctors, but now we rarely let anyone drink to the point of having delirium tremens.

Nonetheless the majority of researchers write about 3-5 percent of the people who consume alcoholic being alcoholics.

The 5 percent sooner or later are noticed (absenteeism, the detoxification center, family fighting, the beginning of the aggravation of ulcers and hypertonia) and, consequently, the system sees them and takes them under its room. Possibly the 5 percent figure is too low. And if it is too high? We shall wait and see....

Alcoholics, as we said, can function, and it is absurd to think that we can sit calmly and cope with everything all at once and within about 20 years make all of them sober.

I think that our regional model which took shape under the conditions of the city of Iskitim is quite convenient. The population of 100,000 is uniformly distributed between the city-rayon center and rural areas. There is industry, agriculture and transportation. There are schools, PTU's and tekhnikums. There are leisure services which deserve reprimands. Finally, there is trade in alcohol according to the generally accepted method, with limitations, as everywhere, but there is also the plan which, naturally, has not been adjusted in any way.

And what have we seen? Approximately since the fourth year of operation, the plant absentee or the person who has been fired from the shop for drinking, the family hooligan, the violate of the law, the visitor to the drunk tank--all these categories of people disposed to alcoholism have already been registered in our drug abuse office. In other words, among the contingent that has been revealed we have already found future or current absentees and violators of the law. But the contingent continues to grow and the expansion of the accounting was predicted up to the aforementioned point (5 percent).

The number of people who have quit drinking--either temporarily or permanently --has also increased. The attitude of the drunkards has changed. There has been no such thing as impunity just as there as been no unconditional judgment, which gives rise to pessimism and takes away hope. The system has thrown a lifesaver to each alcoholic and the contingent has recognized that there are more than enough lifesavers, even for those who do not wish to survive.

We have begun planned therapy of families who have been affected by alcoholism. The inspection teams for the affairs of miners have acquired the opportunity to deal with drinking parents without restrictions, to treat them along with the children who require it, to treat the parents before the children begin to drink with them.

It is strange that the class leaders and Komsomol leaders do not seem to have noticed us. I have no explanation for this phenomenon. Perhaps they think that drinking is a matter for adults alone--I do not know.

Five years have passed since the first day of our work. We have determined in broad outlines the contour of the contingent of alcoholics living on our territory, discovered them personally and initially contacted the largest, most aggressive part of this contingent. We have calculated in the dynamic the indicator which we call the remission capability of the contingent.

The system of anti-alcoholic assistance has become stronger. The optimism of the community enthusiasts for public order and a healthy way of life has increased.

We have noted tendencies toward a reduction of the number of crimes committed while drunk as well as absences. The detoxification center has been rid of "repeaters": they have either been treated and no longer drink or they have been put into therapy.

It was possible to take a breather and look around. What comes next? In the system there were some things lacking, some parts had not reached any completion, any logically ending process of reconstruction of the contingent. It turned out that the sober people appeared but in addition to outpatient monitoring by a physician the system did nothing to help them. We almost failed to take advantage of the potential of sobriety!

This fact was worthy of interpretation but at that particular time I was invited to be in charge of the drug abuse service that was being created in the clinical hospital of the Siberian branch of the Academy of Sciences. It was tempting to test my experience with the conclusion of scientists who had been looking at the same problem. And I left Iskitim. The observations came to a halt. But one cannot stop thinking about it....

Active Fighters in the Army of Sobriety

Regardless of what people may say about the alcoholic creating his own disease, that he himself is to blame for it, we cannot escape reality. The person who has sobered up is surrounded by a situation which includes social acceptability and to some degree even encouragement of ritual consumption of alcohol. The alcoholic who has sobered up but has not lost the desire to drink, who is not firm in his convictions and ability to live sober, who has not lost the habit of eliminating psychological barriers as alcohol as with a tranquilizer--this is the main character. Daily life, which is permeated (for him, to the extreme) with drinking customs and habits, attacks him from all sides, penetrates his soul, and he is knocked off balance by temptation.

He turns on the television set and there is a table with a bottle on it. "What shall we drink to?..."

The new year comes. His wife is not joyous about the holiday--there is no champagne....

It is quite gloomy in the brigade. Their pal has become unfriendly, he will not see anybody off on vacation with a bottle, you cannot drink beer with him on a hot day, it is altogether unclear what is going on in his head....

But that is still just the surface.

He is undergoing changes in his metabolism. His nerves, as they say, are on edge, but life goes on. Sometimes his boss yells at him, sometimes his wife will start to nag, sometimes his children get into mischief. There are many ups and downs. It is good if the patient goes to consult a physician and obtains medicine. But if he decides to "take the stress" in his own way? No, he has not forgotten nor will he suddenly forget how quite recently he calmed himself down with vodka, enjoyed a little wine, started dancing, and lost himself in endless and incoherent conversations over beer.

Not everyone is capable of filling up their free time. Now that he has stopped drinking he has nothing to do. It is difficult to get an extra job because of the formality period. He is tired of watching spectator events, and they are not free of propaganda of the culture of drinking; sports are too

difficult, one has to have a trainer, and the trainers are engaged in training star athletes. Not everyone can be fulfilled with household chores. Things are boring....

Some people start accumulating things. They try to make up for what they lost while drinking. They accumulate money and acquire rugs, furniture, automobiles and dachas. There is nothing wrong with this, nothing at all. One composer who had gone to pieces lived in a broken-down apartment, having retained only a folding bed and a nightstand. We treated him and convinced his wife to return. I dropped in on him a year later and there he was sitting at a piano. It was so nice: a piano!

Well, is this the end? Should people who have sobered up be left to cherish their bank accounts, break their backs on their dacha plots and keep automobiles? Good for them! But to assume that the entire contingent all at once, having sobered up, will throw themselves into hoarding things--this is where the real delusion lies. And then--will they ruin what is left of their life trying to make up for this shortage? One must admit that this kind of future does not inspire one to struggle for mankind. Drunkenness is an intellectual, emotional and moral destruction of the personality. Therefore the restoration of the individual to sobriety means that he must acquire the will for self-sacrifice.

It was a remarkable event when the brigade leader--mentor Gastyunin came to us. The brigade leader brought two of his workers in for drug abuse treatment at the same time and then also his son-in-law. He consulted on how to get the chap who lived next door free from his drinking parents. The brigade leader Gastyunin who had stopped drinking 7 years ago after treatment and had found a meaning for his existence in telling as many alcoholics as possible about this, had taken a firm hold.

Gastyunin was successful. But here is Sinitsyn who, having become sober, acquired enemies in his collective. He entered into a hard battle to eliminate drinking. Well, who would like that? The boss, in order to improve the moral climate, encourages the celebration of birthdays, not without dry wine, of course--but after work! But here Sinitsyn gets up and points out: the work place is not a restaurant. They say to him: and we are not going to get drunk, we are just sitting here. But he says: You have found a place--so sit.... Or this. Sinitsyn walks among the people on his shift to meet the soft step of one of his coworkers. "Uh-oh, you're soused!" mutters Sinitsyn through his teeth. And the other one says kind-heartedly: "I will not get angry at fools. I shall simply wait until you back to drinking." Sinitsyn grabbed him by the collar: "You!..." Understandably there is noise, unpleasantness and an investigation: "You, Comrade Sinitsyn, keep your hands off people." Sinitsyn heard my lecture and came up to me: "Now I understand the essence of alcoholism. Believe me it is difficult to stand alone. People like me who are not drinking should join together!"

We simply treated Rogulin. He was drunk, bloated, his face was red and he was seriously ill. He has not been drinking for 3 years now and he is active in our sobriety club. At first at all of the meetings of the club which was just getting started, everyone asked:

"You treated me. Why? I had been drunk half my life...."

"Two-thirds!" Sinitsyn clarified.

"Two thirds, there you see? The doctor took our pacifier away from us--the bottle, a tried and true refuge for difficult hours."

"You should be grateful!"

"Wait, Nikola, I want to discuss this...."

He wanted to discuss it and I was pinned up against the wall: would the venture of the club fail? We had barely gathered together 10 patients, of whom Gastunin and Sinitsyn were the only people with any significant period of sobriety, and all the others were still undergoing a course of conventional reflex therapy, but we were preparing for them for a super task: to become the vanguard of the reconstructed contingent. Mentors, agitators, assistance for the drug abuse service.

I had no reason to worry.

Now it is clear: that part of the system works too. And how! We did not borrow the name from mythology or from flower growing or from mineralogy as certain other sobriety associations did. We are the Club of Friends.

Even Ragulin is now reaching the truth. His first question when he first came into the club was: "What caused you to think about our general problem?" He asked me this during an hour when everyone was sitting around in a circle and speaking frankly:

"And you, Doctor, why do you take our problem to your heart, our disease? Were you not ill?...."

I answered with the first thing that came into my head:

"You know, I have a very long-standing guilt and sadness for Lesha Kormilitsyn and Timka Voronov. They will never be with us again...."

I discussed Lesha and Timka.

The Club of Friends understood it all.

"Everyone has his own Lesha and his own Timka," the chairman said assuredly. "Only they are still living and have blood running through their veins."

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ALCOHOLISM PROGRAMS IN FOREIGN COUNTRIES DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 172-179

[Article by B. I. Garbuz, candidate of jurisprudence (Moscow): "Foreign Programs for Fighting Against Alcoholism"]

[Text] Unjustified expenditures on chronic alcoholics and the low productivity of their labor are forcing the ruling classes to search for ways and means of fighting against this phenomenon.

Several years ago many capitalist countries developed a campaign to draw up and adopt comprehensive statewide programs for preventing alcoholism and treating and rehabilitating alcholics. These programs combine the efforts of various services which in one way or another are associated with this problem either on the level of control and prosecution or through the health and social security services. Such statewide programs were adopted at the end of the 1960's and the beginning of the 1970's in the United States, France, Sweden, Norway, Finland, Canada, Switzerland, Holland and Greece. Certain countries have created special scientific centers for investigating the essence and causes of alcoholism.

One of the widespread areas of scientific research abroad is the study of "models" or "varieties" of drinking. The goal of this research is to establish forms of drinking in various segments of society, to determine the models of drinking that are permissible for this society and to develop safe norms for the consumption of alcohol for various age categories, social groups and so forth. The permissible "models of drinking" are considered to be at the level of consumption of alcohol which does not cause antisocial consequences.

The National Institute for Fighting Against the Abuse of Alcohol in the United States conducted extensive research at industrial enterprises, as a result of which it was established that at least from 5 to 12 percent of all the labor force in the country suffers from alcoholism. A nationwide conference was held at which they discussed the problem of preparing a standard program for fighting against drinking and alcoholism among workers and employees in the country. Such a program was developed and adopted.

The entire campaign for fighting against alcoholism among workers and employees is conducting in three stages. It is headed by a member of the HEW (an agency for supervising the health of workers and employees). He appoints administrators for the program in the states and large cities, and they have jurisdiction over program inspectors directly in the institutions and enterprises.[1] Administrators of the program, as a rule, are physicians who have treated alcoholics. The program's administrator conducts instruction with the inspectors of the program on methods of work, supplies anti-alcoholic literature, and organizes consultations and medical treatment of alcoholics at the request of the inspectors.

The program is carried out by a special official--the inspector for insuring the health of employees. He is appointed as the manager of the institution (enterprise). The inspector receives instructions developed within the framework of the program which stipulate the standard symptoms of alcoholism in various stages and define the nature of conversations with workers and disciplinary measures.

Treatment under the program is carried out only for those who are of significant interest to the institution (enterprise) and only when the quality of their work has deteriorated. The measures envisioned by the program are not applied to people who have worked at the enterprise for less than a year. During this test period it is quite possible to reveal those who drink and work poorly and to get rid of them without any trouble or expenditures on treatment.

The entire system of measures under the program can be conventionally divided into two stages. The first stage--disclosure and correction, the second stage--treatment.

The first stage is carried out by the program inspector on the basis of detailed instructions which give the symptoms of the behavior of people who are abusing alcoholic beverages. An inspector who has received a signal indicating a reduction of the effectiveness of a worker's labor is to pay attention to such typical features of the behavior of the "suspect" as frequent absence from work with the excuse of illness or various "accidents," late arrival and early departure from work, unusual explanations for absences or tardiness, restlessness, excessive talkativeness, consumption of a large amount of water, changes in external appearance: slovenliness, sweatiness, shaky hands, redness of eyelids and eyes, and so forth.

After he has accumulated material from observations and suspects that there is a case of alcoholism the inspector conducts the first conversation which is more educational, informing the "suspect" of the severe consequences of this disease. These people are placed under constant observation. According to the instructions all this work is done surreptitiously, without the participation of other workers and without telling them about it. At the secondary signal of violation of labor discipline or reduction of the quality of work the inspector warns the worker of the possibility of being fired or, with the agreement of the enterprise manager, takes a disciplinary measure--suspends him for a period of 10 to 30 days. The second conversation, as a rule, ends with the establishment of a probation period of up to 6 months. If

the suspected person commits another job violation or the symptoms of alcoholism are so typical that the inspector is sure that the employee is an alcoholic, the inspector along with the enterprise physician, with the mandatory participation of the program administrator and the manager of the enterprise, decides on the question of firing the employee or the expediency of treating him.

In this stage of the program, from all appearances, they hire those "secret drinkers" who during their year's probation have not performed well enough. Most of the chronic alcoholics are fired during these two periods--the probation period and the so-called correction.

If the administration of the institution is interested in retaining the worker, he is offered the opportunity to take a course of treatment. If the employee denies his drinking he is immediately fired. The program prohibits compulsory therapy. With the agreement of the worker he either undergoes a course of therapy as an outpatient in the enterprise's preventive medicine department, under the supervision of the program administrator, or the management of the institution sends him on leave for the time necessary to be treated in an inpatient clinic. The treatment in the clinic is carried out, as a rule, at the expense of the worker himself.

The correction system continues to be in effect even after the employee has returned from the clinic. The program inspector constantly keeps track of this category of individuals, registers in writing all interruptions in their work and the worker's behavior, holds conversations, supplies anti-alcoholic literature, and so forth.

There are figures to indicate that in companies that apply the programs for fighting against alcoholism the proportion of people rehabilitated ranges from 50 to 70 percent. According to data of the world health organization, in a number of large enterprises of the United States and Great Britain where systematic work is done to fight against alcoholism tnis indicator reaches 85 percent.

The New York Transit Company which has 34,000 employees who work on the New York subways and buses, as a result of the application of the program for fighting against alcohol, in one year saved $1.5 million because of the reduction of leaves for illness. The cost of conducting the program was $65,000 a year. The National Council on Alcoholism which made these calculations comes to the conclusion that the company cannot allow itself not to have such a program. For here the calculated savings just from this one item--leaves because of illness--and expenditures on nonproductive labor, absences, accidents, reduction of commodity turnover, expenditures on training new workers and employees and so forth are considerably higher. It is no wonder that the federal government, under pressure from large monopolies, has allotted a large subsidy to the National Council on Alcoholism so that it could create 70 information centers concerning this problem in all of the main population points of the country.

There are figures to indicate that similar work is being conducted by the British National Council for Fighting Against Alcoholism.

We have discussed in detail the survey of programs for fighting against alcoholism because the very posing of the problem of the possibility of organizing a fight against alcoholism under the conditions of an enterprise seems deserving of attention. This experience is especially interesting from the standpoint of organizing this work, the system of measures for control and so forth, although it is obvious that it is not directly applicable for a socialist society since the main "lever" of this system of measures is the threat of being fired under conditions where there is unemployment in the country.

One should also be critical about the overall estimation of the effectiveness of these programs under the conditions of a bourgeois society. The fairly large percentage of workers who have been cured of drinking and alcoholism at enterprises and institutions where this program is being applied is explained mainly by the fact that "obvious" drinkers are fired during the first year of their work without any kind of treatment. Because of this there is a steady increase in the number of homeless alcoholics or those that live in slums (so-called "Skid Row") who are permanent residents of entire settlements in the suburbs of large cities of the United States, Britain, France and Finland. The alcoholism in the slums is the clearest expression of the terrible consequences of the entire complex of class, economic and spiritual contradictions which are typical of the capitalist way of life.

Alcoholism, as a rule, leads to social isolation of the alcoholic and disturbs family, labor and other social relations which leads to a reinforcement of the undesirable contacts the alcoholics have among themselves, the basis of which drinking together. Because of this in such countries as the United States and friends attempts are made to create special institutions that are called "halfway houses" and dormitories. These institutions are created to facilitate the changeover from 24-hour observation of the alcoholic in special hospitals to independent life in society. The halfway houses exist partly on donations and the monetary funds of working alcoholics who pay for a room and board. The people who are in these homes, with the help of the administration, must find job within the first 10 days and pay each day for their room and board.

It is impossible to determine the precise number of "halfway houses" in the United States and France since many of them close quickly and others are only beginning to function. American sources give an approximate figure of about 100 of these houses which have been in operation in the United States since 1969.

Many American scientists note that at the present time this important and interesting undertaking is on the verge of catastrophe since these institutions are in need of state financial assistance and also the country's medical and social services should be drawn into their activity.

Another measure for social adaptation of the alcoholics is the organization of colonies of alcoholics and drug addicts. A number of alcoholics and drug addicts who wish to be treated in 1968 pooled their money and created in Santa Monica (the state of California) the first colony in which in 1972 there were

about 700 people living. In 1972 in the United States there were seven of these colonies which have their own schools, hospitals, clubs, various production shots and so forth. These colonies, as a rule, are located in suburbs and have large subsidiary farms--animal husbandry farms, hothouses, flour gardens and so forth.

The residents of the colonies live in individual apartments of a hotel type and eat in large dining rooms. Many of them have families. Two conditions are set for those who wish to live in the colony: they must completely refrain from the consumption of alcohol and narcotics and they must have a job.

The basic motto is no privileges or distinctions: everyone must work without receiving any remuneration. All of the service work is done by the colony residents themselves (cleaning the premises, preparing the food, laundry and so forth). Many of the people living in the colony have specialties as physicians, educators, musicians and so forth and work outside the colony, but they donate some of their earnings to its fund. But they too are obliged to work a certain number of hours in their specialty in the colony. All activity of the colony is managed by an elective agency--the council of colonists.

The rules for life in the colony do not envision any limitations on the behavior of the colonists. They can freely leave the colony at any time of day. But if they consume alcohol or narcotics the council is obligated to ask the person to leave the colony. Taking into account the circumstance that it is very difficult to break the habit of using alcohol (narcotics) during the first months of sobriety, the council of columnists in Santa Monica has introduced a half-year probation period for people who are entering the colony. During this period they have increased supervision on the part of the "fellow sufferers," and the narcotics addict (alcoholic) is involved in heavy physical labor. For 90 days he is forbidden to have meetings with his relatives and friends and can leave the territory of the colony only with special permission from the council of columnists.

The main method of treatment in the colony is the psychological method--an exercise in openness on the part of all participants in the meeting. In the opinion of proponents of this method of treatment, one of the reasons why alcoholism and narcotics abuse are widespread is the spiritual devastation and the separation of people in the modern capitalist society. None of the customary medical means are used in the treatment of alcoholism. In the evenings in the colony they conduct various measures: lectures, films, group classes in music or drawing, and so forth.

The diversity of measures and means used in capitalist countries in order to stop the growth of alcoholism shows the significance of this complex social problem for the bourgeois society. From a survey of the measures for fighting against alcoholism in bourgeois countries one can draw certain general conclusions. First, there have not been nor can there be any universal, single measures for fighting against alcoholism. It is necessary to have a system of measures--economic, educational, medical, legal and so forth, which are implemented for a long period of time, and on a stable scientific basis.

And, second, no positive experience in fighting against alcohol that is used in one country can be automatically transferred to other social conditions.

FOOTNOTE

1. The HEW official is on the service of the agency for supervising the health of the population: administrators of the program--on the councils of staffs or municipalities of cities; the inspectors of the program serve in institutions or at enterprises where the programs are being applied.

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FORMS OF WAGES IN ROMANIA DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 180-192

[Article by E. S. Korobchinskiy, Scientific Research Institute of Labor of the USSR State Committee for Labor and Social Problems (Moscow): "'Akord Global' --The Basic Form of Wages in Romania"]

> [Text] Up until recently two main forms of wages were used in the socialist republic of Romania: several varieties of piece-rate payment and time-rate payment. The law concerning wages points out that one of the forms of piece-rate payment is piece-rate plus bonus--"Akor Global."

"Akord Global" and the Brigade Contract

In the methods developed by the Romanian Ministry of Labor "Akord Global" is defined as a form of organization and payment for labor whereby the production subdivision on the basis of an agreement with the administration takes on a commitment to perform a certain amount of work within a particular time period or to produce a particular quantity of products in physical terms. For this it is given a general (global) sum of wages in keeping with the quantity of labor necessary to perform the work envisioned in the agreement.

It is recommended that the "Akord Global" be applied in places where the peculiarities of the technological process require collective organization of labor (for example, in the extraction industry--when digging mines, repairing oil derricks, at enrichment factories; in machine building--in casting, thermal processing, assembly of equipment and so forth). The decision to introduce the "Akord Global" is made by the agency for collective management of the enterprise[1] which is responsible for providing conditions for its effective application. The methods emphasize that the introduction of this form of wages should be preceded by a determination and a refinement of the quantitative and qualitative indicators of work of the corresponding subdivisions, the normatives for expenditures of the main kinds of raw materials, processed materials, fuel and energy necessary for carrying out the assignments envisioned by the agreement, the later norms for the basic and auxiliary workers and, correspondingly, the wage rates per unit of product and kind of work. A great deal of significance is also attached to material and

technical supply and constant monitoring of the effectiveness of the "Akord Global."

This form is used not only for individual teams and brigades, but also for sections and production units and shops. It applies not only to workers, but also to foremen, engineering and technical personnel and management workers.

In keeping with the decree of the State Council of Romania of 10 December 1983, at industrial enterprises the wage fund calculated as a monthly running total from the beginning of the year in keeping with the fulfillment of planning assignments as a whole for the enterprise, is planned according to the indicator of output in physical terms (for the structure of the assortment envisioned by the plan) and the normatives for labor expenditures established for each kind of item or job, taking into account the observance of qualitative parameters.

The overall sum of wages for the subdivision depends on the volume of output expressed in physical units, its quality and also the volume of exported products. This sum is not limited either in the event of overfulfillment of planning assignments or in the event of underfulfillment of them. In order to encourage growth of labor productivity both individually and for the enterprise as a whole, the wage fund of the subdivision remains unchanged regardless of the change in the number of personnel. This wage fund is distributed among workers of the subdivision depending on their wage rates, the actual amount of time worked and their personal contribution.

The agreement for an "Akord Global" is concluded by the brigade leader, the section foreman or the shop chief with a representative of the enterprise's administration. It contains the mutual commitments of the parties. It envisions an assignment for the volume of output in physical terms which is admissible (that is, which has assured sales) quantity of above-plan output,[2] the composition of the brigade with respect to the various categories of workers determined on the basis of the corresponding norms and normatives, the overall sum of wages calculated for the collective, individually for workers and foremen and for engineering and technical personnel and employees, and its distribution into so-called advance and guaranteed sums as well as the conditions for their payment.

People who are working under the "Akord Global" are paid advances each month according to their wage rate and the amount of time they have worked. By decision of the brigade and with the agreement of the management of the enterprise the advances can be increased or reduced by 20 percent, depending on the workers' contribution to the fulfillment of the assignments and within the limits of the overall sum of the advance fund. The so-called guaranteed sums are paid at the end of the job and amount to 10-20 percent of the overall sum of the calculated wage. They are paid completely upon the fulfillment of the following conditions: the observance of the established time periods for the completion of the work and the normative of expenditures for the main kinds of raw materials, processed materials, fuel and energy. They can also envision other conditions which pertain to the structure of the assortment, product quality (performance of work), rhythm of production, coefficient of the utilization of machines and equipment, and observance of particular

technological parameters. If the conditions envisioned by the agreement are not met the guaranteed sums can be reduced by 50 percent and more right down to being eliminated. The amount of a reduction is established by the agency for collective management of the enterprise. The deductions are made either from each worker in proportion to his wage rate and the time work or only from workers who are responsible for the failure to meet the corresponding conditions if it is possible to determine who these workers are. And these deductions along with deductions for failure to meet norms cannot exceed one-third of the wage rate. If the deductions from the wages of these workers do not cover the entire sum of the reduction of the guaranteed payments, the difference is kept for the rest of the workers according to their wage rate and time worked.

Foremen and other managers of subdivisions are paid the full amount of the guaranteed sums only if they fulfill the plan for the output of the products indicated in the agreement and if the normatives for the expenditure of raw and processed materials are not increased. If the agreement has also envisioned other conditions, in the event that they are not met the guaranteed payments can be reduced right down to zero. People who have left at their own request are not paid the guaranteed sums, and these are distributed among the workers who remain.

The introduction of the "Akord Global" system of organization and payment for labor requires a high level of the base for norm-setting. Substantiated norms for labor expenditures expressed in norm-hours per unit of output at the present time extend to approximately 80 percent of all commercial output from industry, that is, its labor-intensiveness has been determined. In construction the proportion of substantiated norms for expenditures on the most important kinds of work is 65 percent, and in agriculture--only 15 percent.

On the basis of technically substantiated labor norms they determine the labor expenditures for each kind of product on the planned list (the labor-intensiveness of the unit of output), the overall labor expenditures in man-hours for the entire planned volume of output and the overall sum of the wage fund, mainly in terms of the category of basic workers. On the basis of these amounts, for the indicated category of workers, they establish the piece rates for each kind of unit of output (or volume of work) and for one man-hour that is worked. On the basis of established labor norms and normatives for the number of personnel they calculate individually the overall labor expenditures and the wage fund for the entire planned volume of the final output in the category of auxiliary and service workers. In percentages of the overall expenditures and the wage fund established for the basic workers they determined the piece rates per unit of output and for each man-hour for the given category of personnel. In the same they established the piece rates for line shop personnel: engineering and technical personnel (including the shop chief) and workers of the administrative staff of the enterprise (including the directors). By summing up all the rates established for all the groups of personnel they determined the overall piece rate for each unit of product that is produced in the shop and enterprise.

In the opinion of certain Romanian specialists the "Akord Global" can be called a "conditional piece-rate form of wages."

The conditions for the fulfillment of the plan are established in a different way for each category of personnel. But here one considers the unity of the indicators that are established for workers and for engineering and technical personnel in the shop. For example, the following conditions and percentages of reduction are established (see table).

Within the framework of the "Akord Global" one can apply individual piece-rate wages for various categories of work (for example, for a young worker of the third category when he performs work of the fifth category). The difference between the different categories of work and the category of the worker is one of the sources for the piece-rate increment;[3] the second source is related to an increase in the individual labor productivity.

Table--"Akord Global"--Form of Wages in Romania

Meeting of Conditions	Percentage of Reductions of Wages for Each Percentage of Underfulfillment of Conditions for Categories of: Workers	Line Personnel	Management and Staff of Enterprise
Observance of norms for for expenditures of material and energy resources	0.4	0.2	--
Observance of quality of products	0.3	0.25	0.2
Output of products for export	0.3	0.3	0.2
Output of products on list, on time and in the established volume	--	0.25	0.2
Fulfillment of plan for commodity output	--	--	0.25

Time-rate payment is used only in special cases envisioned by the law: for guards, janitors in the work premises, porters and other similar occupations.

With the "Akord Global" there is also material incentives for saving on material and energy resources in the amount of 30 percent of the sum of the savings in the majority of the branches of the national economy and in the amount of 50 percent of the sum of the savings in the branches of heavy industry, and also when materials that are in short supply are saved. The source for payment of these bonuses up to 30 percent inclusively is the wage fund. For 50 percent deductions the Gosplan draws up a list of materials that are in short supply and the bank pays sums within the limits envisioned by the Gosplan.

Bonuses for saving on materials for one or two brigades, if the enterprise as a whole has not fulfilled a plan for savings, are paid from the wage fund. If the entire enterprise as a whole has saved on materials, the bonuses are calculated in excess of the wage fund. In practice they are rarely paid (3

million leva a year) for the national economy) since the norms are rigid and it is difficult to achieve a savings; additionally, the enterprises do not wish to take the savings into account.

Incentives were planned and above-plan output of products for export are also envisioned. The sources for stimulating exports are reduction of material expenditures and the additional fund for incentives for exports from the state budget. Let us say that for the entire national economy this fund amounts to 1 billion leva. It is distributed among the various ministries depending on the proportion and the complexity of exported goods (for machine tools--more, for agricultural products--less). These are additional payments within the framework of the wage fund.

For a successfully fulfilled assignment for export one can additionally pay for the work in a higher category.

The wage fund of the labor collective at any level, with a stable volume of production or with an increase in the output of products, and with a constant number of employees, provides for a close dependency between the growth of labor productivity and the increase in payment for it. Moreover, an increase in wages with such a system cannot exceed the growth rates of labor productivity.

Certain specialists consider the "Akord Global" to be a collective-piece-rate form of payment for labor according to the final output while others simply translate this term as "brigade contract."

When compared with the brigade contract which is applied in the USSR, the "Akord Global" can be divided into the following aspects which deserve attention:

a sufficiently developed normative base;

the inclusion in the form of engineering and technical personnel, employees and management workers (analogous to the Novosibirsk Experiment);

expansion of the frameworks of the subdivisions included in this form; it has gone beyond the limits of the low-level labor collective;

a clear evaluation of the qualitative results on the basis of a normative act, which makes it possible to regulate more strictly the responsibility for quality;

the existence of separate rates for engineering and technical personnel.

At the same time the comparison reveals the number of weak aspects of the "Akord Global":

the lack of a coefficient of labor participation in it makes it impossible to reflect the personal labor contribution of the worker precisely enough in the earnings;

the requirements of the "Akord Global" for the organization of production and labor have not yet been fully met, and therefore concrete results of this form are less than expected;

the unified inclusion of the entire national economy in one form of wages does not make it possible to take into account the specific features of the organization of production in various branches.

the "Akord Global" is characterized by poorly developed cost-accounting relations; in keeping with the general principles for "naturalization" of planning in Romania, at the basis of this form are primarily the commitments of the subdivisions for the fulfillment of planning assignments in physical terms.

From this standpoint attention should be given to the introduction into the Romanian petroleum industry of comprehensive cost-accounting brigades with their own balances of income and expenditures.

The "Akord Global" is a variety of the collective contract which oversteps the framework of the brigade; in the future it will all encompass entire enterprises. The "globality" of this form, in the opinion of many Romanian specialists, consists, in the first place, in that it includes stimulation of all aspects of production (the quantity and quality of output) and, in the second place, in that it does not abolish, but absorbs other forms of wages.

From single experiments to general dissemination.

The "Akord Global" has been applied in Romania since 1973. After experiments in individual brigades it was extended to construction and agriculture, and then to industry. Initially it was applied at the level of brigades, and subsequently--of sections and shops. Mainly on a voluntary basis, this form encompassed almost 75 percent of the people employed in the national economy, and then the sphere of its application began to decrease because of a number of factors (the lack of development of the normative base, the instability of the plans and the inadequate level of material and technical supply).

In 1980 the Politispolkom of the Central Committee of the Romanian Communist Party criticized a number of branches for reducing the number of piece-rate workers. Beginning in 1979 the ministries and enterprises stopped planning the proportion of workers included in this form of payment. The enterprises began to depart from the "Akord Global," which required efficient organization of production and labor. While in the fourth quarter of 1978 in industry as a whole 58.4 percent of the time worked was paid for by this form, in the first quarter of 1980 only 31.5 percent was. The proportion of time-rate workers increased during this period on an average for industry from 29.7 to 34.4 percent, including in the extraction industry--from 42.4 to 50.3 percent, and in electric energy--from 77.9 to 88.1 percent.

The Politispolkom of the Central Committee of the Romanian Communist Party set the task of considerably expanding the application of the "Akord Global" and planning the inclusion of workers in this form of wages. In 1982 the proportion of workers included in piece-rate-plus-bonus payment amounted to 57

percent in industry and 70 percent in construction, but the sphere to which the piece-rate-plus-bonus payment extended was not uniform among the various branches.

In September 1983 by a decree of the national convention of Romania the "Akord Global" was declared to be the main form whereby payment was made for labor in the country. It extends to all branches of the national economy (industry, construction, agriculture, transportation, scientific research, planning and design organizations and so forth) and also to all categories of employees (workers, foremen, engineering and technical personnel, managers of enterprises, shops, farms, brigades and so forth), including auxiliary personnel employed in the care and repair of equipment and those employed in internal transportation and warehousing.

The Initial Effect and the Effect Today

The experience in applying the "Akord Global" in industrial enterprises, according to the Romanian press, proves its effectiveness. The utilization of this form of organization and payment for labor contributes to significantly improving the indicators of the economic activity of the enterprises. This is confirmed by the experience of such enterprises as the Floreshtskiy Tire Plant, the Vaslui Machine Plant, the Brasov Truck Plant, the Bucharest Plant for Radio Parts and Semiconductors, and so forth. Thus at the Bucharest Plant for Radio Parts and Semiconductors from 1976 through 1980 labor productivity increased 2.2-fold. Almost all of the increase in output was obtained as a result of increasing labor productivity. Workers at the enterprise think that the "Akord Global" contributed to this to a significant degree.

It is noted that its utilization considerably reduces material expenditures and improves product quality. Granting the brigade the right (with the permission of the majority of its members and the agreement of the enterprise management) to increase or reduce the wages of a worker in an amount of up to 20 percent contributes to no small degree to improving quality indicators (the observance of normatives for expenditures, economizing on energy and fuel, improving product quality. It is precisely this form of payment for labor that brought about the initiative of the collective of the Ploesti Plant for Petroleum Equipment: "Whoever produces defective work, let him pay a penalty to the brigade."

Romanian economists think that the "Akord Global" contributes to improving labor organization. The conclusion of an agreement for its application requires a preliminary analysis of the methods and organizational conditions for carrying out the work envisioned by it. The "Akord Global" increases the interest of each worker in the entire course of work and stimulates better utilization of working time as well as the master of related occupations.

It is emphasized in the press that this form not only arouses the creative thought and initiative of the workers, but also contributes to considerably increasing production and labor discipline and creates interest in effective utilization of fixed capital, fuller realization of the production potential of the subdivision and reduction of absenteeism.

The "Akord Global" also has a positive effect on the organization of the labor of management workers, motivating them to reveal existing production reserves. They also have greater responsibility for eliminating shortcomings in supply, planning and coordination of work. Thus the director of a mine in Hunedoara noted that such preparatory organizational measures as clarifying the tasks of the subdivisions for introducing this form, introducing into the rules of the internal policy of the enterprise provisions concerning the responsibility of mass foremen and other line managers and also refining the functions they perform contributed to successful application of the "Akord Global" at the mine.

The Romanian economic press also draws attention to the shortcomings that have been revealed during the course of the application of the "Akord Global." They note, in particular, the lack of correspondence between the labor norms and the level of modern technical equipment, the skills of the workers and the organization of production and labor. There still frequent cases of the establishment of reduced assignments and the inclusion in agreements of secondary conditions and formal control over the fulfillment of quality indicators. Here the agreement under the "Akord Global" should not be regarded as a purely legal document, but primarily as a practical instrument for planning, analysis and distribution of production assignments, which directs collective efforts toward the achievement of important qualitative parameters that are especially significant for the enterprise.

At the March (1982) Plenum of the Central Committee of the Romanian Communist Party it was noted that the level of wages in the country had risen considerably recently and certain workers (especially employees) were beginning to be satisfied with 80 percent of their wages (that is, advance payments) but no effective incentives for fulfilling the plan had been created. They emphasized the importance of a close link between wages and the fulfillment of planning assignments: "If the plan is fulfilled by 50 percent, let the income be equal to 50 percent."

The "Akord Global" is impossible without significant efforts for improving the organization of production and labor. It was necessary to improve the work of production flow lines, to include absolutely all operations in them, to prepare production more carefully, to extend more effective technologies everywhere, to reduce manual operations (especially in repairing equipment), and to provide a material base for improving the rhythm of production and the supply of parts for on-the-spot repair.

The "Akord Global" enlisted all managements workers in the process of labor organization and provided for balance among the brigades, better movement of the work force and its distribution among the subdivisions of the combine. During the period of introduction, all staff workers, including from the labor division, worked in the shops, helping to solve all organizational problems on the spot.

In the steel-smelting shops of the Galati Metallurgical Combine planning assignments were broken down for each kind of activity (preparation of the furnaces, casting, service and so forth). Assignments were determined precisely in physical units for each brigade and each worker. It was also

necessary to improve labor norms and normatives of the number of personnel, to refine wage rates per unit of output and to establish general rates which include both workers and engineering and technical personnel.

The introduction of the "Akord Global" at the combine produced an appreciable economic effect. Before the introduction the fulfillment of assignments for commodity output amounted to an average of 99.4 percent, and after it--106.1 percent, and expenditures per 1,000 leva of commodity output before the introduction--97.3 percent, and after it--96.8 percent. In the steel-smelting shops they reduced the time of smelting and increased the quantity of steel, and earnings increased by 10-15 percent. Cooperation among the brigades became stronger, the supply for the work positions improve, and interruptions in the utilization of equipment decreased.

There was greater interest in fulfilling assignments for proportional labor-intensiveness. This brought about a need to analyze in greater detail at the level of the branch and the enterprise the possibilities of more precise calculation of the proportional labor-intensiveness, depending on technological factors; they began to take into account more the specific features of each section of work in metallurgy when distributing the wage fund.

Universal introduction of the "Akord Global" increased the activity of collective management agencies. At general meetings the workers make proposals for changing planning assignments and they participate in the substantiation of the production volume in physical terms as well as its assortment.

The "Akord Global" is a dynamic and developing form. During the time of its application a number of bottlenecks and unsolved problems have appeared and these require new searches in order to improve it. It is necessary to develop more clear-cut criteria for paying workers of auxiliary shops and to search for forms and methods of closer coordination of the earnings of engineering and technical personnel who are working in the functional subdivisions with the results of the production shops. When paying for labor one should take into account more the measure of responsibility (now the foreman is responsible for three to four brigades and receives wages depending on the fulfillment of four indicators while the brigade leadership, whose responsibility is less, is paid dependent upon two indicators, that is, the brigade leader receives more than the foreman does).

The "Akord Global" does not allow for leveling and the brigades and shops have sufficient opportunity to know the contribution of each individual and to pay him accordingly; it creates an intolerant attitude toward violators of discipline. At the same time the "Akord Global" requires mobilization of labor collectives and an exceptionally large amount of attention to the organization of production and labor.

FOOTNOTES

1. This is the Council of Workers at the enterprise. It consists of 15-35 people. From seven to 17 of these people represent workers and employees

and are elected at a general meeting. The chairman of the council is the secretary of the party organization and the first deputy is the director of the enterprise.

2. If because of limitations on raw material or difficulty with sales the agreement stipulated limits on above-plan output for a particular period of time, the earnings for the output produced in excess of these limits are not paid.

3. Say that a worker has reached wage level II. The payment in the shop is made according to level I. With individual payment the worker will receive a basic wage at level I and additional benefits (increment for length of service, night work, payment for temporary disability) at level II. With collective piece-rate he will receive payment at level II.

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QUALITY OF OFFICIAL INSTRUCTIONS EXAMINED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 193-206

[Article by A. S. Kazarnovskiy, candidate of technical sciences, institute of economics of industry of the UkrSSR Academy of Sciences (Voroshilovgrad): "And So, Let Us Compare Official Instruments"]

[Text] "Do your subordinates have official instructions?"

"Of course they do."

"Do they use them?"

"Of course not."

"?..."

"As soon as everybody begins to work according to the instructions production comes to a halt. Instructions are for the bureaucracy."

"And how does the director view this?"

"He is also against the bureaucracy but demands that everyone have instructions: what if suddenly there were an inspection?..."

From a conversation with a shop chief

Bureaucratism...what immediately comes to mind is the unattractive image of a heartless automaton guided only by the letter of instructions. We are inclined to place this phenomenon in the same category as red tape, petty office work, incompetence and other negative factors in administration. Yet we know that opinion of V. I. Lenin that in order to achieve firmness and at the same time flexibility of the management staff it is necessary to have a "good bureaucracy" which is subordinate to policy. Clear and definite activity, businesslike work, the ability to act, a conscientious attitude

toward work, steady movement toward the established goal--these are the essence of Lenin's understanding of "good bureaucratism."

And today, many years later, Lenin's idea is still timely: as before, we need a "good bureaucrat," one who honestly does his duty, for "regularity and order are themselves a necessary aspect of any means of production."[2] But he can appear, develop and improve only with the framework of a formal organization. One of the basic indicators is that decisions and actions of officials are determined by a system of rules which are established in normative documents, including official instructions. Their legal force is based on the right of the economic agency to independently change the internal structure and determine the limits of competence.

Why was it necessary to repeat things that were known? As was shown by our investigations in a number of industrial enterprises, there are official instructions almost everywhere. But full-value instructions are actually suitable for daily use are as rare as hen't teeth. Such instructions were developed, for example, at the Darnitskiy Railroad Car Repair Plant and in certain productions of the VAZ. But in the majority of cases the collections of instructions are stored in the Division for Scientific Organization of Labor or the Division for Labor and Wages, as far as possible (and not without justification) from the people to whom they are addressed. At best their place is in the farthest drawer of the worker's desk. Frequently instructions are not developed at all at the enterprise, and on request the standard ones that were sent by the branch scientific research institute will be taken out and shown to people.

A unique situation has arisen: the official instructions as a necessary instrument for raising the level of management cannot be drawn up well because the level of management itself is not high enough. It is a vicious circle... It arose at the beginning the 1930's when the practice of organizing management was disconnected from science, and up to this time there is still departmental guardianship of enterprises and centralized regulation.

There is not a single worker who can become a "good bureaucrat" if the norms which guide him are drawn up by a "poor bureaucrat." But even efficient norms do not produce any long-term advantage if they are not translated. Therefore the organizational mechanism should not only develop high-quality organizational legal norms, but also register them for reproduction. The official instructions seems to be the main means of registering the structure and norms for the activity of the worker, one of the final products of the work of the organizational mechanism.

The quality of the official instructions depends on the observance of principles for drawing them up. Let us consider a couple of them.

1. Not standard instructions, but standard methods for developing them. Today regulatory documentation is frequently developed for managers and head specialists in the form of provisions concerning the position; for engineering and technical personnel and employees--in the form of official instructions; and for the workers--in the form of instructions for the work position. But the specific nature of the activity of these groups of workers is not the

basis for their regulation. In the methods it is expedient to use those general principles and methods which are necessary when drawing up any regulatory documentation with respect to all officials. Thus we turn away from standard regulatory documents in favor of standard methods of creating them. The application of the latter under concrete conditions, naturally, leads to various concrete official instructions.

2. Not mutual agreement in management, but a legal basis. For what problems are the DI (business instructions) needed, what is the area of their application? They clearly establish the sphere of competence of the worker. This is of great practical significance since it makes it possible to increase the possibility for the matters entrusted to them, to avoid anonymity and to create a legal basis for sanctions against unconscientious workers and at the same time protect the worker from unjustified requirements. A clear idea of the range of responsibilities makes it possible to plan the work for a long period, to make effective decisions, and for the newcomer it is possible to master his work more rapidly. The DI should serve as a standard when evaluating the actual activity, for example, when transferring, certifying, summing up the results of socialist competition, applying the incentive system and so forth.

Recently systems of control of quality and the effectiveness of labor have become widespread. But with attentive consideration it turns out that their basis is "truncated" DI's, and not always of a high quality. So would it not be better to apply well-known and effective means in this area than to invent a new instrument and methods of measurement and control?

3. Not planning the organization of management, but regulating it. It is important to understand that the DI is not the same as the plan for the organization of management and does not compete with it. It is only a means of formally reinforcing organizational decisions that were adopted during organizational planning, a form of expressing these decisions for a specific official in terms he can understand. The planning of organization is a completely different activity than its regulation, and it requires different methods, means and organizational forms. To create DI's and the more so a system of them without preliminary revision and improvement of the existing organization of management means to cause harm to the matter of organization for such instructions simply mirror all the imperfections of the methods and structures of management and it is better not to create them at all. But the development of DI's is frequently replaced by planning the organizational structure and local decisions are made so that the totality of DI's do not comprise a system. As a result the rights and responsibilities of the worker do not correspond to one another or to the responsibility he bears, and the duties of one worker do not correspond to the rights of another, and there are no instructions about interconnections.

Here are a couple of examples.

According to the DI, the section chief "ensures rhythmic operation of the section and uniform output of products in keeping with the production program and the daily assignment." But rhythmic operation of the section, as we know, depends not only on the organization of production, labor and management in

it, but also on the work of associates, the quality of planning and so forth. But the section chief has been given no right to act outside his own unit.

The shop mechanic has been given the right to "give instructions to foremen and brigade leaders regarding the content and operation of equipment and to monitor their fulfillment." But according to their DI, there is not a single foreman or brigade leader who is obligated to carry out these instructions. In the section for providing materials and spare parts for repair the DI makes it incumbent on the shop mechanic only to draw up orders; at the same time he is responsible for "observance of the established time periods for down time of equipment during repair and the quality of the repair of equipment."

Such instructions exert no influence on the condition of the organization or management processes which take form at random. They are drawn up by bureaucrats in the worst sense of the word. The shop chief with whose conversation we began these remarks was right in refusing to work according to such instructions.

What additional rights should be given to the section chief and what responsibilities to the mechanic? But even the admissibility of this question can be established only when analyzing the tasks, goals and technology of management contained in the organizational plan, for it is not impossible that it will be necessary to do something altogether different: reduce the duties of the section chief and the responsibilities of the mechanic.

4. Not simply a group, but a system of instructions. In and of themselves DI's are local documents. But as a reflection of the systematic organizational plan their totality can comprise the system. To do this it is necessary to observe a correspondence between:

the rights of the manager and the responsibilities of the subordinate (the former should be confirmed by the latter);

the rights of the subordinate and the responsibilities of the manager (the realization of the rights of the former is provided by the corresponding duties of the latter since the primary responsibility of any manager is to provide his subordinates with everything they need to work);

the responsibility of the manager and the responsibility of the subordinate for carrying out a certain task (the former should not include the latter);

the duty of the source of information and the rights of the consumer of information;

the duty of the consultant and the rights of the individual requiring the consultation.

The legal substantiation of the last two correspondences is mandatory organizationally and technically in the organizational structure, regardless of the hierarchy of the participants. The systematic nature of the DI is a necessary condition for the organization of collective activity.

5. Not to contemplate, but to act and manage. A central part of the DI is the division entitled "Duties." The latter are the maximally concretized functions described by verbs of action, for example, "to gather, explain, do, notify, make a decision, transfer, plan, calculate, present," and so forth. When formulating duties it is also necessary to indicate what and of what quality should be the result the worker achieves from proper performance. But what do we see when we open at random the collective of official instructions? Most likely what will appear before our eyes are such formulae: to provide, to organize, to achieve, to direct, to take measures, to contribute"...or even better: "To monitor, to regulate...." But what specifically a worker should do, in what volume, what is the technology of his work--this we do not know. Such descriptions are suitable for determining the directions of activity and the functions, but not the duties. They are useless for efficient norm-setting for the labor of the worker, inspection for the fulfillment of the DI; they do not "operate" in such a broad area of application of the DI as was outlined above.

6. Not duties without any rights, but a coordinated complex of "duties--rights." For each duty the official should have a certain right: which resources (labor, material, financial, informational or energy) and in which volume he can use them, which actions are permitted for him to carry out his duties. For example, to make and coordinate various decisions, to represent the subdivision in other agencies, to go to the managers with a petition or information, to communicate with other workers and demand particular actions from them, to encourage and punish, to delegate authority, to interact with party and public organizations, to ask for additional authority, and so forth. When duties are assigned without rights, responsibility becomes illusory. This is a key point and whether or not official instructions become the handbook of the worker or gather dust on the shelf for years depends on the degree to which this point is observed.

Let us conduct a simple experiment: ask a colleague to write down his duties on the left side of a sheet of paper and on the right side opposite them to indicate the corresponding rights that have been granted to him. You will probably put him in a difficult position. And even if he finds his DI, it will hardly help him for a lack of concreteness and completeness of the rights is a typical feature of many DI's. Even a superficial acquaintance with sections entitled "duties" and "rights" in any DI reveals that the number of positions in the former category is much greater than in the latter, and some duties simply hang in the air.

Let us turn our attention to some interesting properties of duties and rights. Each duty is a formula of legally official and this means officially legally competent behavior. That is, each duty is at the same time a right to perform a particular action. If it is not utilized the duty cannot be performed. Therefore the provisions from the section entitled "Rights" by their form and compulsoriness should be similar to the formulas of duties. It is not so much the greater freedom of selection during application that distinguishes rights from duties as their functional role in the DI: rights set additional conditions and possibilities which when observed and utilized caused the results of the performance of duties to be above 0. Here is an obvious

manifestation of the systematic nature of the complex of "duties--rights": it is impossible to define "what is what" when one is separated from the other.

Therefore there is nothing surprising when to a question of the type "Is it the official's duty or right to make a decision regarding such and such a question? " One received various answers. "To halt the operation of equipment that is in disrepair" can be the duty of the foreman, but then in the rights that are granted to him it can be indicated, for example, "to turn off and seal off equipment that is in disrepair, to evacuate people from the danger zone," and so forth. But this can also be one of his rights which correspond, for example, to this duty: "To warn of a production failure." Obviously, rights can play the role of variants of the technology of carrying out duties. It is important for the provisions in these sections to correspond to one another strictly and for them to exhaust the range of activity of the worker.

7. Not only authority, but also responsibility. The presentation of the official's responsibilities in the DI causes difficulties. As a rule, this section repeats the duties in a "procurator's tone," without introducing anything new. This involves some curious aspects as well. But in the DI for the shop economist we discovered that he is responsible for "promptly informing the sections, shifts and brigades of production assignments and technical and economic indicators; prompty informing the shop chief about all violations in his work...."

Since the application of the DI should increase the responsibility in management we assume that it is permissible to consider the elements of competence as various aspects of responsibility:

the volume of responsibility (for what is he responsible)--duties;

the direction of responsibility (to whom is he responsible)--subordination;

insurance of responsibility (what opportunities are granted to him to carry it out)--rights;

the "physical" feasibility of responsibility (the qualities of the individual responding to the demands placed on the position)--qualifications;

the measure of responsibility (sanctions)--responsibility as such.

Since the aforementioned aspects, except for the last one, should be reflected in the corresponding divisions of the DI ("General Provisions," "Duties," "Rights"), in the division entitled "responsibility" it points out that the worker is responsible for failure to fulfill the provisions of his DI and it gives reference to normative documents (the Labor Code, the Rules for Internal Order, the provisions for bonuses and so forth) which establish the kind and the amount of the sanctions. Here is it useful to indicate typical unfavorable consequences for related units of the organizational structure which can occur as a result of unconscientious fulfillment of the provisions of the DI by the worker.

In addition to the aforementioned, the DI includes the following sections:

"Interrelations of the Worker"--describes the ties between the worker and other officials regarding which issues, how frequently, in what time periods, under what conditions, the content of the information received and transmitted, the forms of the ties and so forth);

"Wages and Incentives"--it gives indicators on which incentives depend, forms of wages, the possibilities and conditions for professional growth and advancement;

"Inserts"--indicate the policy for checking on the fulfillment of the DI and the results of regular inspections, changes and additions to instructions;

"Appendices"--gives a list of instructive-methodological materials that are always at the work station and frequently used forms of documents.

It would be expedient, in our opinion, to introduce into the DI a section called "Job Ethics."

8. Not just any old way, but according to a certain procedure. To draw up a DI means to describe the duties, rights, responsibility and conditions for the activity of the workers, and the policy for their interaction in typical management situations. And one must begin with a determination of responsibility and then move on to the formulation of duties, and then--rights.

As has already been said, it is possible to begin to draw up a DI only after completing the planning of the organizational structure. That is, there must be a schema for the organizational structure, a technology of management and drafts of provisions concerning the subdivisions which contain a description of their goals, tasks, functions and external ties. Drawing up the DI, additionally, becomes a means of advancing the art of management which predetermines the participation of managers in this process as the main performers of the work. The manager will strive to embody in the instructions his own ideas about the norm of behavior of his subordinate. Work on these norms will automatically motivate the manager to organize his own activity efficiently. Participation in the development of a DI also realizes the right of the manager to distribute authority among his subordinates. Without this he cannot be fully responsible for the operation of the subdivision.

When drawing up the systematized DI for his subordinates the manager should proceed from the goals (tasks) which are developed when planning the microorganizational structure. To each goal (task) or group of them he assigns an official whom he holds personally responsible. The worker will have to go through a particular sequence of operations that are established by the technology of management. Those tasks which include operations that are closely interconnected should be joined into a single group. Thus the interactions of the workers of the subdivision will be reduced to a minimum and it will be simpler to coordinate their work. Thus one group could include tasks A and B if the result of one of the operations of task A is necessary for carrying out task B and this cannot be put off; or A and B should be

carried out in parallel during the process of partial coordination of intermediate results and its necessary to have regular personal contacts between the performers of the work and an exchange of special knowledge; or A and B have the same sources of information and the same recipient of the result, and so forth. It is also possible to assign to one individual the responsibility for the performance of a group of technologically homogeneous operations from various tasks (calculation, formulation and so forth). The limitations here will be the requirements for uniformity of the loading of workers and also their qualifications and numbers. If the latter are such that one cannot achieve a satisfactory grouping then it is necessary to make the corresponding changes in the organizational chart.

When a group of tasks is determined and the people responsible are singled out it is necessary to draw up for each of them on the basis of the technology of management a list of duties for carrying out these tasks. Here it is necessary to have the participation of the recipient of the instructions himself. He clarifies which tasks or operations he will take on himself and which he will leave for his subordinates. In the latter case the list of duties is augmented by the general duties of any manager. Then a list of rights is formed as is a description of the interconnections of the given worker with others and the other sections of the DI. Here it is important to observe the principle of the systematic nature of the instructions, constantly checking with provisions of various DI's and various sections of the same DI. To do this it is also necessary to develop the entire system of the DI in parallel: first all of the divisions of "duties" and then all of the "rights," and so forth.

Drafts of five to seven instructions can be created in 2-2.5 weeks. The division for scientific organization of labor should give the authors the corresponding organizational documentation (drafts), render them methodological assistance, develop schedules for the work for drawing up the DI and supervise their fulfillment, and the legal service should provide the developers with the necessary legal documentationa and check to make sure that the provisions of the DI correspond to legislation of a higher level.

The drafts of the DI with authorization from someone in the Division for Scientific Organization of Labor and a lawyer are submitted for approval. The DI's for people who are not included in the list of positions of the higher agency are approved by the manager of the economic agency. The DI's for workers of the higher agency are approved by this agency. All the other DI's must be approved by the line managers of those people who have jurisdiction over the recipients of the instructions. Unfortunately, frequently all DI's are approved by the manager of the economic agency, which transforms this act into an empty formality.

Knowledge of the DI is a guarantee that it will be followed. Therefore every manager should organize a study of the DI by his subordinates. Fairly good results are being achieved with the utilization of business games for this study.

9. Not the letter, but the living deed. The instructions have been approved and delivered to the worker. How does one make sure that they become a

working document? Much has already been done in this direction: certain principles for drawing them up and the technology have been reserved, the recipient of the DI has participated in the development, has studied all the fine points of the DI, has become familiar with the DI's of associated officials and has recognized his responsibility to them. But this is not enough. The main thing is for the manager, each day and without being afraid of appearing to be a bureaucrat, to use the DI's he has drawn up as standards for evaluating the activity of his subordinates and for the latter to know about this. Regularly comparing the actual activity of the worker with the norms established in the DI, the manager can classify the results of the inspections in keeping with the schema:

is not doing what is prescribed;

is doing what is not prescribed;

is doing what is prescribed but not promptly;

is doing what is prescribed promptly, but with poor quality.

The inspections can also show that the range of duties that are being performed satisfactorily by the worker is broader than the one prescribed by the instructions. The manager is obligated (and this should be reflected in his DI) to utilize the results of the inspections to motivate workers, to transfer them and to improve the structure, methods and processes of management and organization of labor. From the results of this work the DI must be adjusted: the official instructions are not a goal in themselves, but an instrument for management and organizational activity does not end with drawing them up, but only begins the new cycle.

Drawing up the DI is complicated, painstaking work which requires a sober calculation, patience, organizational knowledge and desire to apply it in practice. Work without instructions is an area for uncontrollability, incompetence, and laxity in business relations and, in the final analysis, it reduces the effectiveness of public production. This is work without a future, according to the principle of "nothing matters as long as we do our own work," which creates favorable conditions for the flourishing of the worst kinds of bureaucratism.

"...All this is interesting," our shop chief tell us having looked over the article. "But where should we being?"

Begin by asking yourself a question: "Why am I in production? To play the role of a pusher or to be an organizer?" One can fight disorganization only with organization, and therefore look around you for people who think the same way you do and win them over. Think about how to improve the activity of your subordinates and plan at least a couple of organizational measures. Come to some agreement with the plant legal expert so that in the group you form he will hold classes on methods of internal regulation, and begin to draw up one or two sets of instructions. Discuss them in the group, paying attention not so much to your mistakes as to those factors which caused them: shortages of certain kinds of knowledge, time and so forth. Eliminate these and draw up

new instructions which are better. Know that by doing this you will be laying the basis for the organizational mechanism we have discussed: it is based on SELF-ORGANIZATION.

We wish you success!

FOOTNOTES

1. Lenin, V. I., "Poln. Sobr. Soch." [Complete Collected Works], Vol 43, p 373.

2. Marx, K., and Engels, F., "Soch." [Works], Vol 25, p 356.

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WAYS OF STREAMLINING BUSINESS CORRESPONDENCE SUGGESTED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 207-209

[Article by A. B. Belyavskiy, chief of the Division of Propaganda and Agitation of the Preylskiy, CPSU Raykom (Latvia): "A Combined Notebook"]

[Text] A good deal has been written about business correspondence and minor mechanization of the labor of the manager. This was the subject of the book by G. Kh. Popov ("Tekhnika lichnoy raboty" [Technical Equipment for Personal Work], "Sovetskaya Rossiya," 1979), R. Verenburg, "Ratsionalizatsiya i Tekhnika Raboty Apparata Upravleniya" [Streamlining and Technical Equipment for the Work of the Management Staff] ("Progress," 1969) and many other works on scientific organization of labor and organizational equipment, including articles in EKO. The organization of management labor and minor mechanization of it have been discussed enthusiastically by the fathers of Soviet theory of scientific organization of labor, A. K. Gastev and P. M. Kerzhentsev. The list of literature and authors could be continued. The task of the present article is very modest: to show yet another system of business correspondence which appeared as a result of an analysis of others systems and experiments with a notebook.

The notebook should be compact and fulfill the functions of an "operative memory." It is expedient to arrange the information in the notebook not chronologically, but by subject. This facilitates searching for it. Indeed, it is much easier to imagine the record of a conversation, for example, with the chief of the water and sewage department should be looked for in the section called "Water Supply and Sewerage" than to recall the date in May (or perhaps it was June) when this conversation took place. When reporting on a particular subject to the higher organizations it is also more convenient to dig up the information from one section than it is to search for it among chronological entries. It is also very important to plan the conversations, meetings and conferences for the month, week, day and the hours of the day. Sometimes it is necessary to recall the course of events chronologically. Therefore the notebook should have a calendar as well.

As a result of many tests we have come up with a notebook which consists of three sections:

a calendar similar to the calendar of "Business Entries";

a section for subject entries;

a section for address and telephone information.

In order not to have to change the entire calendar each year or all of the subject entries, addresses and telephones, the notebook is kept in a "four-hole" notebook which was borrowed from a volume of documentation for imported equipment. A domestic looseleaf binder can also be used for this purpose. But it would still be desirable for it to have many holes. This will make it possible to protect the sheet with entries better. Moreover it should make it possible to take out and put back any quantity of sheets in any section. Then at the end of the year it is possible to replace the calendar and individual entries while preserving everything necessary. A notebook with this kind of looseleaf binder becomes almost permanent if it is revised from time to time.

But first it must be created. How does the notebook I have used for many years look? In order to be able to carry the notebook around it is better to put it in a leather (or imitation leather) case with a zipper. Such cases are almost always available. They have two large interior pockets on the two sides and on the left pocket is sewn a little smaller one--120 by 220 millimeters. On the right pocket in the lower corner it is necessary to attach a looseleaf binder containing 200-250 pages 150 x 210 millimeters in size, and we shall allot 53-56 pages for the calendar. In it, as in the "business entries" one can do operational planning of work time. It is possible to plan events for the more distant future as well. To do this at the end of the calendar we place a couple of pages for next year on which it is possible to write down planned future assignments.

After the calendar for operational planning of working time comes the section for subject entries of information which begins with the heading of subjects that are written on a cardboard insert. Naturally, you determine the entries yourself.

It is important not to have too many subjects for otherwise it is difficult to keep track of them. To begin with one must take five-six sheets for each subject, number them in the upper right-hand corner and put the sheets in the looseleaf binder. When you have 20 subjects there are 100-120 sheets. At the beginning of each subject it is desirable to introduce the necessary generalizing numerical or other information.

After filling in the general data you should write down everything that you consider necessary: decisions from conferences, negotiations, results of inspections and all kinds of other information about the subject. In order to systematize these entries they must be numbered, you must indicate the data and place of the conference, conversation, inspection and the people present at them.

Sample entry:

11.26.07.84 Trust "Energostroy," Chief, Ivanov, I. A.
Head Engineer Petrov, A. I.

For Construction TP-4545

Decided:

1. Position the necessary equipment--TM-500 transformers--two units. 15.09.84; Disconnecting switches--16 units 01.10.84

2. Complete installation and turn over for adjustment 19.10.84

In the section for the calendar, following this example, one can indicate the time period for carrying out these points of the decision made at the conference. For yourself, in addition to the minutes since there is frequently delay in writing them up, you can briefly note the issues that interested you in order to keep track of them. The multihole looseleaf binder makes it possible to freely increase the number of pages in a subject, and to take out and store notes which are no longer crucial but are still worth keeping. Of course, it is unrealistic to carry with you all of the minutes from conferences but "condensations" of the necessary information and the most important decisions regarding the subjects dealt with by the manager are very useful.

It is expedient to systematize the entry of addresses and telephone numbers according to subjects: higher organizations, local, party, soviet and public organizations, planning and scientific organizations, and so forth.

In my opinion, it is more convenient to write to the addresses and telephone numbers of organizations and institutions, and not the surnames of the workers. If, for example, the chief of the thermal mechanics division of the institute, Ivanov, is promoted, the division still remains and Sidorov is appointed as its chief. It is easier to find in the section of institutes the telephone number and address of the thermal mechanics division than to recall the last name of the former division chief.

Subsequently everyone can perfect the case with the notebook in his own way. Fasten in the lower corner of the right inner pocket a looseleaf binder and in the upper corner a clip for storing papers 130 by 90 millimeters in size. A small little pocket sewn onto the large pocket on the left will serve for storing certificates, library cards and so forth. The large interior pockets remain free and can be used for storing larger documents. On the left pocket one can fasten a small calendar for the year and other trivia necessary for work.

The case for the business person is ready!

Experience in using such a case with a notebook made it possible for the author not to forget his appointments and to save time in searching for operational information. The habit of always carrying the file with one comes fairly quickly. Try to use this system of notes in your own work.

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PROS, CONS OF FLEXIBLE WORK SCHEDULE DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 210-218

[Article by V. E. Kavats, candidate of economic sciences, Riga Medical Institute: "The Mysteries of the Flexible Work Day"]

[Text] "Science has proved that people do a lot even if they have no idea of why they are doing it."

--Hans Sele, "Stress of My Life"

For? Against? For!

The experiment in introducing a flexible work day continues. In Estonia dozens of enterprises have already changed over to the new working conditions. More than 5 years' worth of experience in the operation of the Tallinn Knitwear Production Association Marat show that when a flexible schedule is introduced the absences from work with the permission of the administration have dropped to one-third and absences without permission--to one-half of the average for the branch. Labor turnover has decreased by almost half.

In Latvia the enterprises and institutions which have changed over to the flexible work day can still be counted on the fingers of one hand. The Institute of Planning of Land Reclamation has 3 years of experience. Out of the entire collective which amounts to more than 800 people the flexible schedule is not used only by the administration, the computer center workers, the shift workers and those who have been changed back to the "rigid schedule" because of violating the conditions of the flexible schedule.

Certain lawyers think that the measures conducted for regulating the work of trade, transportation and consumer services nullify the significance of further experiments in introducing the flexible schedule and that these working conditions are legitimately only for women who have small children. Therefore many enterprises "in order not to endanger the success" prefer to modestly remain silent about their experience in working with the flexible schedule.

Almost all managers of industrial units which have changed over to the conditions of the flexible working day note on questionnaires an improvement in the conscientious labor discipline. And the rank-and-file workers are most impressed by the good atmosphere. Attempts on the part of the author of these lines to get down to the economic results were perceived indignantly by many peoples: you can't measure attitude in rubles!

In the Baltic area the results of introducing the flexible schedule are approximately the same as in Siberia.[1] Let us try to classify these results. In the first group we shall include the reduction of unpleasant irritants:

the fear of being late for work is eliminated;

people are not nervous about the late transportation which ends up having a positive effect on the work process;

they do not kill themselves running to the bus stop and do not hang on to the handles of an overcrowded trolley;

and there are no requests to leave work an hour or two which are difficult both for the manager and for the subordinate.

In all of the aforementioned cases we are speaking about unnecessary, but objectively existing stress factors--irritants which lead to distress, exhaust the organism's ability to adapt and can lead to certain disturbances which are sometimes called "diseases of adaptation." These diseases selective affect the weakest places in our organism: the cardiovascular system and the digestive tract. The processes of their appearance from overloading of the adaptation mechanism were discovered by the Noble Prize winner Hans Sele. The areas of the human body most damaged by disease of adaptation are shown by the curves on the illustration for the column "Health--An Economic Category."

The same group of results includes improvement of the functional capabilities of the cardiovascular system of people working on the flexible schedules as compared to the control groups who were working with a fixed schedule.

Hans Sele not only discovered the diseases of adaptation, but also suggested a number of formulas for preventing them. One of them is: "It is not so important what happens as how the person experiences what has happened."

With respect to the example with the flexible or fixed work day: regardless of how the boss or colleagues react to tardiness--with heavy tones or a significant glance at the clock--if this stress factor is augmented by sanctions in the form of withholding of the bonus or incentives by public organizations, the stress effect is increased.

On the one hand one might think that such an unconscientious person needs this or he would not be late, but on the other hand--under these conditions not everyone has been given the talent and ability to say to themselves: I am calm, that is, adjust themselves for a reaction whereby the adrenal glands excrete favorable homes--cortico steroids. We also encounter these hormones when we go to biochemists for advice, but so far we see an increased

probability of falling ill from one of the diseases of adaptation. I wish to recall the wise thought that the essence of labor discipline is not in the moment of arrival, but in that the work has been done.

"Look to the Root"

This brilliant thought of Kozma Prutkov was not put into the heading by accident. The idea of a flexible schedule cannot reduced simply to solving daily problems and transportation troubles. In the second group of results we have included those which, in our opinion, take Prutkov's idea into account more fully:

the worker selects for himself his most productive hours, in other words, he works during a period when he is most able to work;

there is a more complete combination and coordination of the interests of production and labor discipline, on the one hand, and the interests of the workers, even the individual habits of people, on the other;

the human factor plays a large role in production.

A long time ago the author of the subheading correctly noted that with respect to the human factor "many things are incomprehensible to us not because our concepts are weak, but because things are not included in the sphere of our concepts."

What hours are the most productive? Any hour, any minute of working time a person must work with full exertion of effort. But even the wise men of ancient Greece noted that certain people work better in the morning and certain others in the evening, and therefore the latter were called "owls" and the former, "larks." The people who have gone down in the history of mankind among the "owls" one can include Julius Caesar, the Swedish King Carl XII, and among the "larks"--Peter I and A. V. Suvorov.

Individual historical examples of people's dependency on various types of ability to work at various hours seem random. Especially with respect to "owls" this preference is in glaring contradiction to the fact that the earth still turns on its axis and when the sun comes up all of nature wakes up, including man, and in the evening--vice versa....

Perhaps one must agree with those responses concerning the results of the introduction of the flexible schedule in which the fluctuations of the ability to work within the day are regarded as individual habits of people? But even in this case it is useful to take these habits into account?

The Laboratory of Chronobiology of the Moscow Medical Institute imeni Sechenov have developed a curve of the hourly ability to work of the average person. This curve only partially confirms the current opinion that "morning is better than evening."

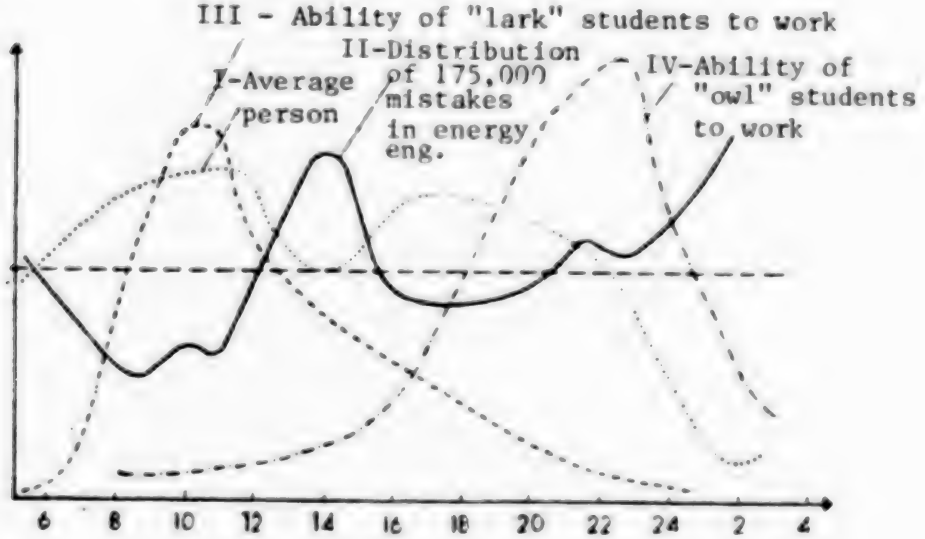
Curve II shows the frequency of mistakes made by personnel in energy engineering in Sweden. It generalizes 175,000 observations over 19 years.

The number of mistakes can be regarded as the inverse amount of the ability to work. If one compares curves I and II, at first glance it seems that in the middle of the day a human, as a biological being, wants very much to eat or, having eaten a lot, his attention has slackened and he makes more mistakes, that is, he loses his ability to work.

If one can literally close one's eyes for the time being and not look at curves III and IV, the reduction of the number of mistakes at about 11 am and pm on Curve II seem to be random deviations from the predictable Curve I or a result of the fact that by 11 am and pm there is a desire to eat something. But taking into account the fact that each mistake made by personnel in energy engineering was carefully analyzed, Curve II is preferable to Curve I.

Research on the ability to work of people who call themselves "larks" and "owls" was conducted in the Moscow Medical Institute imeni Sichonov and by us among students and workers of Riga enterprises. The results turned out to be almost identical and are shown by curves III and IV, respective. If one looks at all the curves of the ability to work without closing one's eyes either in the literal or figurative sense, the increase in the number of mistakes or the loss in the ability to work of the "average" person between 12 and 3 pm can be explained by the fact that by this time the "larks'" ability to work is beginning to decline and the "owls'" ability to work is just beginning to gather force and is still far from the maximum. The tendency toward reduction of the number of mistakes on Curve II at about 11 am and pm correlates fairly closely with the maximum ability to work of the "larks" and the "owls" and shows the contribution of workers with changes in their ability to work.

The Ability To Work in a 24-Hour Period



Ability to work during 24-hour period

Of course among the workers there are also people who do not have these changes, but the patterns at the bases of which lie the "bad" biological hours of various human types, in our opinion, can be traced fairly clearly.

Is it worth struggling for these hours once they are "spoiled"? They will simply have to be improved. But since this is not so simple it will be necessary to consult with biologists and educators.

Candidate of Biological Sciences S. Ruzha (Riga) writes that "the daily biorhythms are the result of the formation of a conventional reflex of a dynamic stereotype. The dynamic stereotype makes it possible to work productively with the least expenditures of time and effort. For 'health'! This is what we need in order to organize labor in general and under the conditions of the flexible work day in particular. Therefore let us emphasize the last phrase. But it continues 'for peace.' 'Individual biorhythms stabilize only when people are adults.' Subsequently even for adolescents one can see those same symptoms of the 'disease of adaptation' discovered by Sele or psychosomatic illnesses as they are called in domestic medical literature."

Table--Let Us Address the Results of Various Observations (in percentages)

More than 100 years ago the German psychologist Hamp divided all people into:	"Owls" 33	"Larks" 17	"Arrhymics" 50
Out of 100,000 West Berlin works investigated, the number not adaptable to the evening shift	--	19	--
For productive labor they prefer	Evening	Morning	Anytime
Among students of the Moscow Medical Institute imeni Sechenov there were	30	25	45
Among Riga residents (students, (workers, employees) there were	33	18	49

In terms of one of the types of division according to blood groups (antigen system) people were divided into	Bearers of the antigen M	Bearers of the antigen N	Bearers of the antigen MN
All humans (1927)	30	20	50
Muscovites (1947)	37.5	16.1	48.2
Minsk residents (1969)	33.5	17.0	49.5

Candidate of Pedagogical Sciences V. Avotinsh (Riga) suggests: "The earlier the pedagogical-psychological and medical correction of general psychological deviations of children begins, the better the results of this work." The correctness of these theses of biologists and educators has been proved by practice. When they have begun at a young age to correct such a stereotype as, for example, left-handedness, they have managed to correct it, but a large number of problems have been left unresolved. It turns out that the innate

stereotype of the left-hander can be overcome, but so much adaptation energy is taken for this that the "objects of reeducation" remain far from the level where they can be dealt with by the master, the left-hander who has created the problem.

At the level of everyday ideas about the homogeneity of the work force, with the help of various educational measures adults can also adapt to working on various shifts. Chronobiologists have established that frequent changes from one shift to another are harmful, especially for those people whose adaptation takes not one or two days, but from one to two weeks. Of course the latter are more subject to distress and the risk of suffering from "diseases of adaptation."

So far we can only guess why some people when changing from one shift to another or after flying through time zones adapt more rapidly and others less so and with difficulty. Science has not found the answers to these riddles, but for flyers in civil aviation who frequently fly through time zones we have established special conditions and special schedules for work and rest.

A Couple of Statistics and Immunology

Before forcing work on acquiring conventional reflexes of the dynamic stereotype of the model worker and ordering prescriptions with Mg and K, one must know the number of "bad" biological hours, that is, establish whether or not these deviations are observed in the 24-hour ability to work of individual people or if these are mass changes. A comparison of data from independent observations makes it possible to assume that half of the people suffer from changes in their ability to work during a 24-hour period during our conditions. It is remarkable that the other half require magnesium in order to maintain their adaptive mechanism. Magnesium is recommended for reducing the probability of a myocardial infarction for people with changes in their daily biorhythms. Which half finds it more difficult to adapt to the fixed schedule of the working day will be shown by further research in this area.

The distribution of people among the various stereotypes of ability to work, in our opinion, depends on heredity immunology.

Our Hypothesis

So far we do not have sufficient information from research on the ability to work and immunity in the system of antigens MN. But there is reason to advance a working hypothesis that the dynamic stereotypes of the 24-hour ability to work of people basically has a materially conditioned nature. Conventional reflexes make it possible to adapt biologically preconditions to social requirements. The acquisition of reconditioned reflexes is an additional stress factor for that half of the people which suffers from a lack of any kind of system of gears is possible by using magnesium in their own daily biological hours. Also one must take into account not only the system of MN antigens but the totality of various antigens.

In order to make it possible for all to work productively, chronobiology, immunology and, possibly, normal physiology of a human as constituent parts of

a unified biological science must go through the stage of reevaluating their views. It would be a good idea to take into account also the sun with all its spots, and the moon, and genes and antigens. But all that has been said is not worth a penny unless one takes into account the social factor: children, men and women. Incidentally, there are relatively frequent divorces among couples who are included in the same stereotype of ability to work. After filing for a divorce most frequently the "owls" and "larks" are reconciled.

Not every woman who is a "little owl" prefers to work more productively in the evening at a job over finding self-expression in her home. In this respect men are more egotistical than women. Sociologists can be convinced of this if among other questions in sociological questionnaires they include such as: the number of efficiency proposals and applications for inventions submitted in 5 (10) years; the time scale (according to the figure in the drawing with an indication of the lines of maximum and minimum ability to work) with a request to draw a curve of their own ability to work.

There is one interesting observation: the proportion of "larks" and "owls" among efficiency experts and inventors is still higher than the average comparable (in terms of sex, age and other demographic indicators) group of workers who were investigated who do not have the inclination to solve problems in their area.

So far there are more riddles than there are answers. Here are two of them: when organizing a flexible schedule for the day is it more correct to adhere to one "fixed" part of the working day or to organize two "fixed" parts--before and after lunch? When is it more expedient to organize the hourly "report breaks" and other conferences?

So far one can draw only one conclusion with assurance, one which is based on a good deal of research and practice--the conditions of the flexible work day please the workers and promise great economic advantages to the enterprises.

FOOTNOTES

1. See Rezakov, A. N., Yevtushenko, V. M., "The Flexible Schedule in a Scientific Institute," EKO, No 12, 1981.

2. "Harmful or Unpleasant Stress Causes 'distress'" see Sele. G., "Stress Without Distress," Moscow, Progress, 1982.

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INNOVATIVE METHODS SATIRIZED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO) in Russian No 10, Oct 85 pp 219-221

[Article by Saveliy Tsypin (Kharkov): "Brain Center"]

[Text] An unfamiliar young person came into the office of the head engineer.

"Hello, my name is Shvets. I wish to conduct research on scientific organization of labor in your enterprise."

"Excuse me, but we never invited anybody from anywhere," the head engineer answered gruffly. "We are not ready for you."

"But I do not intend to meddle in anything," the guest assured him. "I shall simply gather material for my dissertation. Well, I will observe who is working and what they are doing and how busy they are. I will report my results to you personally. If you want to, go ahead and use them if you want. If you don't--throw them in the wastebasket."

"Well, okay, go ahead," agreed the head engineer. "But as we agreed, all the material comes to me first. And then I can stop it at the root...."

A week later the head engineer met Shvets on the territory of the plant.

"Ah, science! How are things going, have you already accumulated some information? Come and see me this evening and tell me about it."

At the end of the day the head engineer said good-bye to his secretary and even locked his office from inside as if he had left. "Well, give it here!" He stuck out his hand.

"In general, some people work more and some people work less, but all of your people are working. In any case they are puttering around," began Shvets. "But there is one phenomenon. You know I discovered one type who never does anything. Do-nothings! It is not the janitor and not the warehouse worker--no! He is a specialist with the highest qualifications. He has his own office. Sits at an absolutely empty desk...."

The head engineer nodded.

"But I must disappoint you. If we had to part with someone at the plant this 'do-nothing' would be the last to go. He is our most valuable employee! The brain center."

"You meant--computer?"

Shvets corrected him politely.

"No, I meant brain. We manage but personnel never has time to think deeply. Current business takes up all our time. We have to keep up with the plan, round up some cars, deliver raw material.... So we have taken off from one intelligent person and left him with one assignment: to think."

"Is that so?" Shvets was amazed. "And he...thinks? In the sense of--helps?"

"Since that time we have not been without bonuses and there has been no strain."

"Could you tell me more about this?" Shvets became excited, quickly taking out his notepad.

"Ah-hah! We have caught your interest, science?" the head engineer laughed. "Well, of course, I will not tell you the serious recommendations of our 'brain.' These are secrets of the firm! But I recall one piece of advice from him. For instance, an order came in: send 100 people to the farm we sponsor for feed. We understand that it is necessary. But to take so many people away from work, and in the summer, means to forget about the plan. What would you have done?" the head engineer suddenly asked him.

"I do not know," Shvets became confused. "One way it is bad and the other way it does not look good...."

"You would never be a brain even for scientific organization. Our brain suggested that we gather students to the workplaces temporarily, for the summer, and send them all out to the farm. Clever?"

"Not bad," agreed Shvets. "But this is not a discovery. Others are doing the same thing."

"All right. I will give you a discovery. But you must not blab about it. For centuries we have produced a batching item--a mirror for a tractor. A trivial thing which costs a ruble and we can load a thousand of them into one box. But do you know what the brain did? He arranged for the mirror not to be a batching item for the tractor, but, on the contrary, for the tractor to come to the mirror. Because a tractor without this piece is not complete, and so with an incomplete part the department for technical control will not accept it. To be sure, we had to prove it and give justification--in four volumes! But we convinced them! And they began to send us convoys of tractors--both with wheels and caterpillar tractors. We attached the mirror

to the tab and send off the prepared machines! It turns out that we have mastered them...."

The head engineer looked at the guest suspiciously.

"Have I talked too much? Keep in mind that all of this is completely within the law, there are no violations, it is simple enterprisingness! Or, for example, they forced us to make consumer goods. Goods for the people. As though we do not make all the other goods for the people. Is it easy to say what is a consumer good? How does one make them? With what? Where does one get the money? The 'brain' thought over this situation. 'Let us rivet together a souvenir,' he said, 'a decorative plate.' 'What do you mean a plate?' we gasped. 'What about the clay? And the kiln? And the specialists? This is not in our profile!' 'Nothing special is needed,' he answered. 'We shall purchase simple table plates and sell them in souvenir packaging. Only we will put decals on the bottoms--to improve their beauty.' Pretty smart, eh?"

"Smart!" agreed Shvets.

"We are competing with the neighboring plant which produces air conditioners. We got ahead for fulfillment of the plan but then they passed us up in terms of points--because of independent activity, people sent to the national militia and again for sponsorship to agriculture. We turned on the 'brain.'..."

"Well? And what happened?"

"He thought. We put the red bands of the militiamen on our dancers and sent them to the harvest--to dance. Again three birds with one stone. We wiped out the air conditioner factory."

"But what did he do before he worked for you?" Shvets was cautiously interested. "Or did you hire him from outside?"

"No, we raised him ourselves. He showed up everywhere--in all the shops and in all the sections. And he blocked everything everywhere. Even now he cannot tell a nut from a bolt. We had all but decided to get rid of him but he asked for a last chance. And here...he turned out to be our savior. Do you understand? A managerial mind is something very specific!"

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